The 1942 THEATRE CATALOG

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A JAY EMANUEL PUBLICATION

★ DEDICATED ★

To a defense of the Nation's Morale through a constant vigilance to adequately maintain our Physical Theatres and their equipment . . . so that the Entertainment, Instruction, and Mental Relaxation produced by the Studios and by Our Government may be portrayed to the Public with a maximum of effectiveness . . .

FOR THE DURATION!

The 1942 THEATRE CATALOG

VOLUME III

Successor to THE EXHIBITOR CATALOGUE

THE ANNUAL REFERENCE MANUAL FOR EXECUTIVES, BUYERS, SPECIALIZING ARCHITECTS AND THEATRE SUPPLY DEALERS

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Foreword . . .

Actually, this is Version No. 2 of this Foreword to Vol. 3 of The Annual Theatre Catalog. Version No. 1 was completed, and had already been set in type when something occurred on Dec. 7, 1941. Version No. 1 was an optimistic essay on the part the industry must play in the defense effort, and how the manufacturers could be depended upon to do their bit during the emergency which had arisen. Yes, there were priorities, but the general nature of Version No. 1 was one of preparedness.

The Dec. 7, 1941 item changed all that, and also threw Version No. 1 out of the window. Certain portions of it could be retained. As always, the manufacturers would be ready. They always are. The exhibitor has always known this. But in the general theme, Version No. 1 was outdated.

Hastily revised to meet actual war conditions, Vol. 3 of The Annual Theatre Catalog is a tribute, we think, to the companies and the men who have helped make up its contents. Some advertisers, to be certain, haven't much to offer theatre customers "for the duration"; but once victory comes one may depend upon them to regain their usual production speed, and serve their regular exhibitor clients. Others, with a large portion of their energies directed toward war output, are still working vigorously, although the "business as usual" sign now becomes "we're trying like Hell".

To all of these organizations and to the men who direct the equipment division, the industry owes unstinted cooperation. It is up to them to keep the theatres operating for the duration, whether it be to 1943, 1944, or later. And to the extent of their ability, they will do the job.

As regards the editorial contents of this volume, we are proud. We believe that the general nature of the articles is more instructive, more down to earth, more timely, and more understandable than ever before. Not because we don't think the articles in previous issues were anything less than perfect, but because the men who wrote for the 1942 edition seemed to feel that the practical attitude must dominate. Perhaps this accounts for the change.

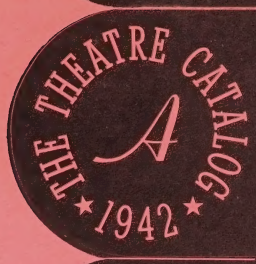
And as these words are being written, machinery is being geared for the 1943 edition. Some might say that to look a year ahead is foolish; that under the present circumstances anyone who plans that far is wasting his time. But we prefer to continue, not under any cloud of uncertainty; but as if the forthcoming year will either bring to us the Victory we rightfully deserve, or a year from now theatres will be still plugging away in the war effort and will need the advice and help of our instructive Annual. We are beginning work on Vol. 4 with the "carry on" spirit which the entire business is adopting.

And in this connection, we can think of no better tribute to the industry of which we are a part than these words broadcast by Walter Winchell, himself a Navy man, over the NBC national hookup on Sunday evening, February 15.
He declared:

ATTENTION MR. AND MRS. UNITED STATES: The Government has certified the motion picture industry as a necessary war industry. This is not the creation of a special privilege. It is an honest recognition of the importance of the movies—the American Way of Life. In the showdown, the patriotism of the silver screen, proved to be pure gold. The movie industry is as uniquely American as a Thanksgiving Turkey, and the loyalty of Hollywood is as solid as Plymouth Rock. Almost as a unit, the men and women of the screen have volunteered to stand behind a gun. The finding that their work is an essential service means that a movie camera is as much an instrument of war as a machine-gun and that an actor's work can be as helpful as a riveter's. In their assigned post of duty, their daily work, they are more than accepting the government's direction. They are obeying orders. The world of movie stars and the starlets is proud to appear in support of the Army, Navy, Marines and Coast Guard. Every facility of the American Theatre of Art—is at the command of their fellow Americans now fighting in the far flung theatres of war. Hollywood values an Academy Award. But it thinks more of the Congressional Medal of Honor.

And that, to our mind, is as fitting a note with which to close this foreword as ever we did see.

THE EDITORS



Theatre

Design

THEATRE DESIGN

THUMB-DEX
Patent No. 1579575

EXPERTS CHOOSE THEATRE WINNERS

The "Perfect 36" Awards

The cream of the crop of recent structural effort is analyzed, and the best singled out for trophies and national acclaim.

by The Editors

What the Pulitzer Prize is to drama, what the Academy Awards are to motion pictures, the 36 Citations and three Bronze Plaques which constitute the "Perfect 36" Awards are to the departments of theatre design, construction, and equipment; to the architects and technicians of the industry's theatres; and to the allied firms which help complete the cinema citadels of today.

It is with this in mind that the "Perfect 36" Awards were instituted. The Citations mean that the 36 annual recipients, regardless of size or construction economies, have contributed to the forward progress of the physical properties of the business. It also means that a staff of recognized industry editors have carefully analyzed the many design features, utility and maintenance economies, patron comforts, and decorative treatments of hundreds of new theatres opened during the past year, and have singled out these 36 as being most worthy.

To each of three theatres selected from the 36 Citation Winners by a committee of experts goes a Bronze Plaque, indicating that they are the ultimate achievements of the year. And each of these plaques will undoubtedly, as they were designed to be, be installed into the structure which has earned this rank of merit.

The three classifications, (1) theatres seating 100-700; (2) theatres seating from 700 to 1100, and (3) theatres seating 1100 and up, were each judged on the excellence of the facade, layout, sight lines, acoustics, interior decoration, patron comforts, and maintenance facilities.

On this and other pages will be found the actual results of the competition, the winners, and all other information as analyzed by the editors.

Largest vote polled by any one theatre was that received by the Beach, Miami Beach, Florida, which garnered a lead of nearly three to one over its nearest competitor. Consensus of opinion is that this was because of its extraordinary departure from the usual in architectural treatment, and also because undoubtedly a number of the judges might have been included among the industryites who manage to get to Florida during the winter months, and therefore had an opportunity to inspect it personally. Even though this last might be considered an advantage, there is no doubt but that the house deserves the high ranking.

Running second in the total numbers of votes compiled was the College, Brookings, South Dakota, the only theatre in the competition which did not have the benefit of an architect's help, yet many architects chose it from the 48 as their selection, a personal tribute to experienced theatreman Frank McCarthy, who planned and supervised every bit of the construction. This must be considered mute evidence of the fairness of the voting. Winners were picked on the basis of accomplishment rather than guild or craft partiality.

Closest race of all was in the 700-1100 seat class, where only 26 votes separated first and fifth places. By the same token, only nine votes gave the Village, Houston, Texas, a win over the Apex, Washington, D. C.

One indication of how diversified the vote was is shown in the fact that 46 out of the field of 48 received varying numbers of votes. In this connection, attention is also directed to the opinions of prominent executives, which follow later in this summation. Some of them praise the value of the trends indicated by such a judging, while others think it adds little to structural development.

Further proof of the honesty and modesty shown in the selections is noted in numerous ballots where the owners and architects refrained from voting for one of their own theatres where they felt another house was more outstanding or superior. In this connection, it might also be pointed out that even if this were not the case, and we are proud to say that it was otherwise, the order of winners still would have been the same.

We could not comment on this judging without pointing out the commercial value to the theatre owner of winning a bronze plaque or a "Perfect 36" Award. Here is an exploitation achievement that should be conveyed to the patron. It elevates the winning theatre, removes it from the group in an area, and places it in a position where community pride should pay off in dividends.

THEATRES which won 1941 BRONZE PLAQUES

100 to 700 Seat Class

Winner: COLLEGE THEATRE, Brookings, S. Dakota, (575 seats).

Owner: Frank J. McCarthy *Architect: None*

1st Runner-up: OAKS THEATRE, Oakmont, Pa. ..... (660 seats)
Owner: Stephen Rodnenok *Architect: Victor A. Rigaumont*

2nd Runner-up: TODAY THEATRE, Chicago, Ill. ..... (327 seats)
Owner: Richard E. Beck *Architect: Loewenberg & Loewenberg*

3rd Runner-up: BOUNTIFUL THEATRE, Bountiful, Utah ..... (656 seats)
Owner: J. N. Bills *Architect: Paul K. Evans*

4th Runner-up: COLONY THEATRE, Livingston, N. J. ..... (600 seats)
Owner: Robud Corp. *Architect: John and Drew Eberson*

700 to 1100 Seat Class

Winner: VILLAGE THEATRE, Houston, Texas ..... (960 seats).

Owner: Interstate Theatres, Inc. *Architect: Mackie & Kamrath*

1st Runner-up: APEX THEATRE, Washington, D. C. ..... (1000 seats)
Owner: Kogod and Burka *Architect: John J. Zink*

2nd Runner-up: HOPKINS THEATRE, East Oakland, Cal. .... (914 seats)
Owner: L. H. Goldsmith *Architect: S. Charles Lee*

3rd Runner-up: MAYFAIR THEATRE, Ventura, Cal. ..... (850 seats)
Owner: Jeanne Dodge *Architect: S. Charles Lee*

4th Runner-up: DAYTONA THEATRE, Daytona Beach, Fla. .... (960 seats)
Owner: Calvin Operating Co. *Architect: John and Drew Eberson*

1100 to the Largest Seat Class

Winner: BEACH THEATRE, Miami Beach, Florida, (1604 seats).

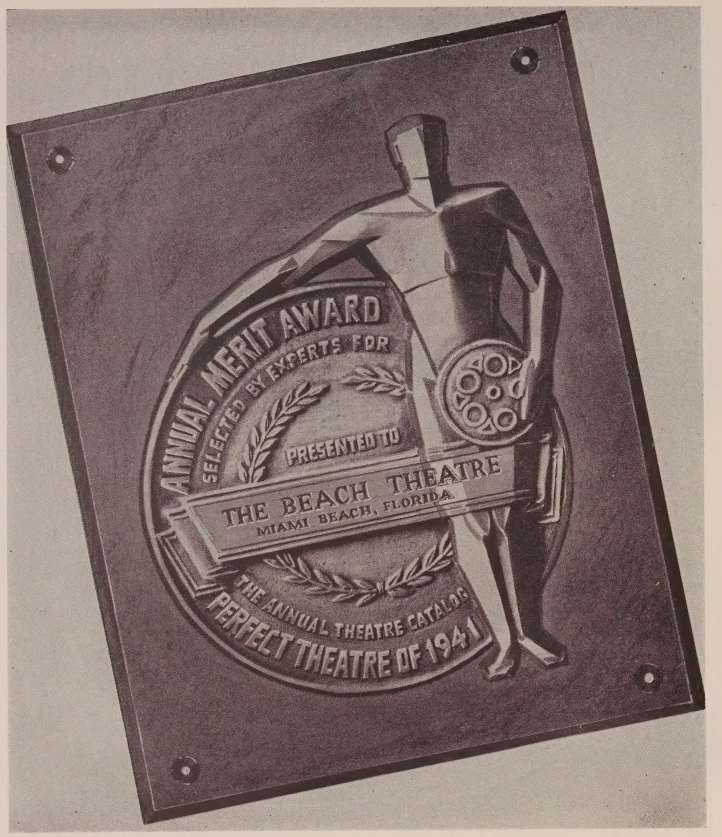
Owner: Moses Ginsberg *Architect: Robert Law Weed & Pereira & Pereira*

1st Runner-up: NOR-SHOR THEATRE, Duluth, Minn. ..... (1300 seats)
Owner: Minnesota Amusement Co. *Architect: Liebenberg & Kaplan*

2nd Runner-up: ROYAL THEATRE, Detroit, Mich. ..... (2496 seats)
Owner: Wisper and Wetsman *Architect: Charles N. Agree*

3rd Runner-up: DELMAR THEATRE, San Leandro, Cal. ..... (1187 seats)
Owner: Golden State Circuit *Architect: Alexander A. Cantin*

4th Runner-up: DEARBORN THEATRE, Dearborn, Mich. ..... (1498 seats)
Owner: Wisper and Wetsman *Architect: Charles N. Agree*



THE BRONZE PLAQUE Award mount measures 7 by 9 inches complete with four holes for bolting fast to the facia, boxoffice, or lobby wall of winning houses. It is the "Oscar" of the physical theatre.

The editors urge the winners to make the most of this. In the interest of perpetuating such selections, and conveying to future readers the methods used to publicize an award winner, the editors encourage them to send in tear sheets, photographs, or any material which may result. These will be acknowledged with thanks.

As we noted above, comments of those connected with the judging are worth reading. Some of them follow for your interest, and for the record:

John J. Zink, Architect, Baltimore, Maryland:

"In explanation of my markings. I have the following basis to submit:

1. Sufficiency of exits and their distribution in relation to seating.

2. General arrangements of entrances, exits, and other facilities tending to minimize congestion at show breaks, etc. including toilet locations.

3. Design of interiors.

4. Design of exteriors."

A. Funduklian, A. and M. Karagheusian, New York:

"From the pictures, it certainly looks as if the standard of movie decoration and architecture has been notched up."

Paul K. Evans, Architect, Salt Lake City, Utah:

"Taking the brochure illustrations as an indication, I feel that we may certainly look for a most complete and interesting catalog for this year. The only semblance of criticism which could be offered in the presentation of my "Bountiful Theatre" is that the draftsman on this illustration neglected to show the full width steps leading up to the stage and the three doors from the foyer. All in all, I am very happy to have acted as one of the judges in this contest, and have thoroughly enjoyed my study of each of the brochure illustrations."

Clarence S. Thalheimer, Thalheimer and Weitz, Architects, Philadelphia:

"I have carefully studied these theatres from the material which you furnished, and make my recommendations from the standpoint of efficient planning, as well as design".

David Supowitz, Architect, Philadelphia:

"After due and careful consideration, I believe these to be the best in their respective classes."

And the most lengthy observation came from Ben Schlanger, Architect, New York, who asked that this statement be published with the prize announcements:

"I do not believe it is correct to say that there are 36 theatres among the 48 theatres submitted to the judges which can be considered to fit under the heading the "Perfect 36". I daresay that there are a scant handful that might be considered as even approaching the standard of perfection.

"In order for any motion picture theatre to be considered perfect or near perfect, it would be vitally necessary that that theatre have such provisions for acoustics, projection, sightlines, and auditorium lighting during the projection period which are up to the best known standards achievable to this date.

"Unless a substantial portion of the 100 judges had technical knowledge of these problems, they could not act as qualified critics; and unless they had working drawings accompanying photographs could they be in a position to properly examine each theatre. And so, I feel that the influence of ornamentalism and dramatic photography will play a great part in making the so called 100 experts come to their decision in selecting the chosen theatres. If the competition is to serve the purpose of showing the trend in taste and general appointments of the motion picture theatre only, it has that specific value, and it should be described as achieving this end.

"The war and the rapidly changing world we are living in today is bringing out the importance of the functional and engineering aspects of all of the buildings and equipment useful to our lives. The war will have a tremendous influence on our architecture, technical aspects will be given the full consideration which they deserve, and they, and not the superficial meaningless decorations, will be the inspiration for the architecture.

"It is indeed pitiful to have to state that the amount of money spent on superficial decorations, etc. in the 48 theatres submitted is entirely out of proportion to the amount of money which seems to have been expended in investigatory work in making these theatres as perfect as possible for their functional aspects.

"Of course, the blame for this cannot be placed individually on the architects or the builders or the exhibitors or others involved. The fault lies in the lack of an educational program which would convince the exhibitor of the importance of the technical aspects.

"I sincerely respect your desire to improve motion picture theatre design in the hard work which you have done to date. This fine work will only have done some good if those concerned will view these efforts along with the problems and considerations which were difficult for you to present and cover due to obvious reasons."

The Committee which voted was composed of the following:

Owners and Maintenance Engineers of Circuits of Theatres

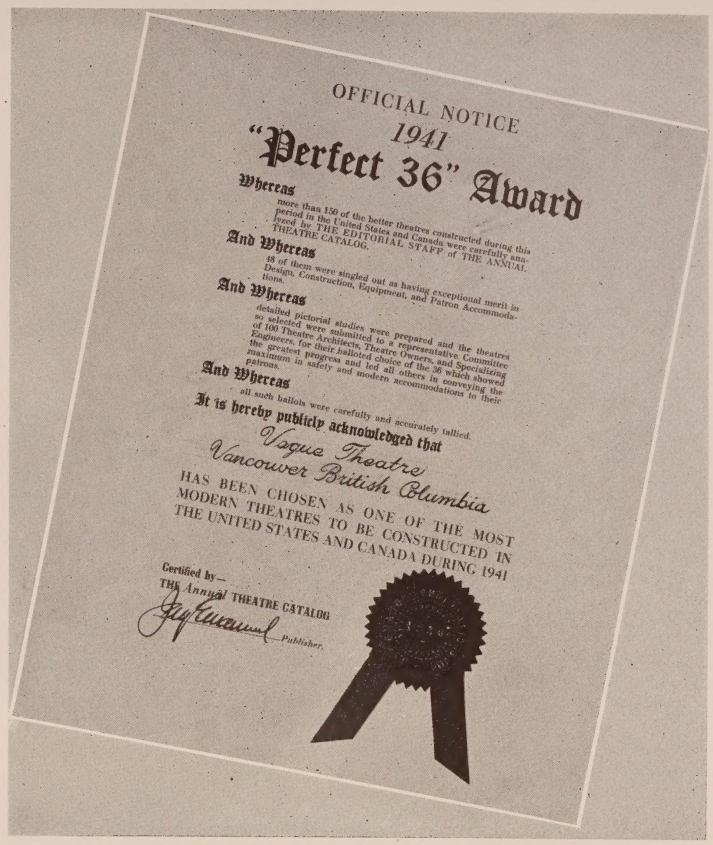
A. BLUMENFELD, *Blumenfeld Theatres* San Francisco, Cal.
C. W. BURCHETT, *United Theatre Equipment Co., Inc.* San Francisco, Cal.
FRANK H. DURKEE, *Durkee Theatres* ... Baltimore, Md.
JOHN J. FREIDL, *Minnesota Amusement Co.* Minneapolis, Minn.
H. J. GRIFFITH, *Pres., H. J. Griffith Theatres, Inc.* Kansas City, Mo.
GEORGE HARTTMAN, *Friendly Theatre Corp.* Kansas City, Mo.
TED JONES, *Yucca Theatres* ..... Roswell, New Mexico
E. L. KEESLING, *Freeman & Newbold*, Bramwell, W. Va.
A. E. LICHTMAN, *Pres., Lichtman Theatres* ... Wash., D.C.
H. R. MAIER, *Warner Bros. Ct. Mgt. Corp.* ..... N.Y.C.
REGINALD MORSE, *Morse & Rothenberg Circuit* ... Boston
FRANK MYERS, *Wometco Theatres* ..... Miami, Fla.
COWAN OLDHAM, *Cumberland Amusement Co.* McMinnsville, Tenn.
L. W. RICHMOND, *E. M. Loew Theatres* .... Boston, Mass.
R. SCHMID, *Minnesota Amusement Co.*, Minneapolis, Minn.
JOSEPH R. SPRINGER, *Century Circuit, Inc.* ..... N.Y.C.
EVANS SPROTT, *Bijou Amusement Co.* ... Nashville, Tenn.
TONY SUDEKUM, *Crescent Amuse. Co.* ... Nashville, Tenn.
N. H. WATERS, *Owner, Waters Theatre Co.* .. Birm., Ala.
NATHAN YAMINS, *President, Nathan Yamins Theatrical Enterprise* ..... Fall River, Mass.

Theatre Architects

CHARLES C. BENTON & SON ..... Wilson, N. C.
ROBERT BOLLER ..... Kansas City, Mo.
E. F. BRUEGGEMAN, BRUEGGEMAN, SWAIN, & ALLEN ..... Little Rock, Ark.
A. O. BUDINA ..... Richmond, Va.
ARMAND CARROLL ..... Philadelphia, Pa.
JACK CORGAN ..... Dallas, Texas
MICHAEL J. DE ANGELIS ..... Rochester, N. Y.
GEORGE A. EBELING ..... Cleveland, Ohio
PAUL K. EVANS ..... Salt Lake City, Utah
ERWIN G. FREDRICK ..... Chicago, Ill.
ROLAND TIP HARRISON ..... Des Moines, Iowa
H. S. KAPLAN, *Kaplan & Sprachman* ..... Toronto, Canada
DIXON B. KELLOGG ..... Detroit, Mich.
S. CHARLES LEE ..... Los Angeles, Cal.
W. H. LEE ..... Philadelphia, Pa.
J. J. LIEBENBERG, *Liebenberg & Kaplan* .... Minneapolis
M. R. MARSH ..... Charlotte, N. C.
HAL PEREIRA ..... Chicago, Ill.
A. E. PRIEST ..... Halifax, N.S., Canada
ROGER G. RAND ..... Boston, Mass.
VICTOR A. RIGAUMONT ..... Pittsburgh, Pa.
WM. J. SCHLESSINGER ..... St. Louis, Mo.
LORENTZ SCHMIDT ..... Wichita, Kansas
C. W. SPEIGHT, *Speight & Hibbs*, ... Clarksville, Tenn.
HAROLD SPITZNAGEL ..... Sioux Falls, South Dakota
O. W. STIEGEMEYER ..... St. Louis, Mo.
E. D. STRAIGHT, *Bennett & Straight* .... Dearborn, Mich.
DAVID SUPOWITZ ..... Philadelphia, Pa.
CLARENCE S. THALHEIMER ..... Philadelphia, Pa.
LEO YASSENOFF, *F & Y Building Service* .. Columbus, Ohio
JOHN J. ZINK ..... Baltimore, Md.

Acoustical, Lighting, Projection, Seating and Air Conditioning Engineers and Decorators

F. W. ALEXA, *American Seating Co.* ..... New York, N.Y.
B. B. BUCHANAN, *Kroehler Mfg. Co.* ..... Chicago, Ill.
L. W. CONROW, *Pres. Altec Service Corp.* ... New York City
JAMES F. DAILEY, *Typhoon Air Conditioning Co., Inc.* New York
LOUIS D'ARCLAY, *Louis D'Arclay, Inc.* ... New York City
B. P. EDELMAN, *USAIRCO* ..... Minneapolis, Minn.



THE "PERFECT 36" Award is a two-color lithograph on decoled edge parchment, and complete with corporate seal and ribbons. It measures 10 by 14 inches, and should be framed for hanging.

ARTO FUNDUKLAIN, *A.&M. Karagheusian* ..... N.Y.C.
W. E. GREEN, *Pres. National Theatre Supply Co.* .. N.Y.C.
N. S. HILL, *Asst. Manager of Sales, Public Seating Div.* Gardner, Mass.
A. I. KESSLER, *Novelty Scenic Studios* ..... New York City
K. C. MORRICAL, *RCA Mfg. Co., Inc.* .... Indianapolis, Ind.
ARMAND T. RICCI ..... Philadelphia, Pa.
HANNS TEICHERT ..... Chicago, Ill.
E. J. VALLEN ..... Akron, Ohio
CHAS. WINSTON, *Chas. Winston Co., Inc.*, ... N.Y.C.

THE "PERFECT 36" AWARD WINNERS

Theatre and Seating Capacity	*Owner*	*Architect*
BEACH THEATRE, Miami Beach, Fla. (1604)	**Moses Ginsberg**	**Robert Law Weed and Pereira and Pereira**
COLLEGE THEATRE, Brookings, S. Dak. (575)	**Frank J. McCarthy**	**None**
VILLAGE THEATRE, Houston, Tex. (960)	**Interstate Theatres, Inc.**	**Mackie & Kamrath**
APEX THEATRE, Washington, D. C. (1000)	**Kogod & Burka**	**John J. Zink**
HOPKINS THEATRE, East Oakland, Cal. (914)	**L. H. Goldsmith**	**S. Charles Lee**
NOR-SHOR THEATRE, Duluth, Minn. (1300)	**Minnesota Amusement Co.**	**Liebenberg & Kaplan**
OAKS THEATRE, Oakmont, Pa. (660)	**Stephen Rodnenok**	**Victor A. Rigaumont**
ROYAL THEATRE, Detroit, Mich. (2496)	**Wisper and Wetsman**	**Charles N. Agree**
DELMAR THEATRE, San Leandro, Cal. (1187)	**Golden State Circuit**	**Alexander A. Cantin**
DEARBORN THEATRE, Dearborn, Mich. (1498)	**Wisper & Wetsman**	**Charles N. Agree**
TODAY THEATRE, Chicago, Ill. (327)	**Richard E. Beck**	**Loewenberg & Loewenberg**
DAYTONA THEATRE, Daytona Beach, Fla. (960)	**Calvin Operating Corp.**	**John & Drew Eberson**
MAYFAIR THEATRE, Ventura, Cal. (850)	**Jeanne Dodge**	**S. Charles Lee**
SUNSET THEATRE, Cincinnati, Ohio (825)	**Ackerman Enterprises, Inc.**	**F & Y Bldg. Service**
BOUNTIFUL THEATRE, Bountiful, Utah (656)	**J. N. Bills**	**Paul K. Evans**
COLONY THEATRE, Livingston, N. J. (600)	**Robud Corp.**	**John & Drew Eberson**
MAYFAIR THEATRE, Flushing, L. I., N. Y. (600)	**Puritan Land Corp.**	**Charles A. Sandblom**
DELAWARE THEATRE, Albany, N. Y. (699)	**Delaware Theatres, Inc.**	**Blatner & van der Bogert**
20TH CENTURY THEATRE, Cincinnati, Ohio (900)	**Oakley Amusement Corp.**	**Maffit, Alcox & Stritzel, archts. for F & Y Bldg. Serv.**
DARLTON THEATRE, Pawtucket, R. I. (913)	**William Pinault**	**C. Reuben Moberg**
REGENT THEATRE, Colonial Heights, Va. (425)	**Colonial Gardens, Inc.**	**A. O. Budina**
BENNER THEATRE, Philadelphia, Pa. (700)	**Leo Posel**	**David Supowitz**
ST. JOHNS THEATRE, Jacksonville, Fla. (856)	**St. Johns Operating Corp.**	**Robert E. Collins**
EMBASSY THEATRE, Atlantic City, N. J. (1485)	**Wielland & Lewis**	**Armand Carroll**
CENTRAL THEATRE, Passaic, N. J. (2400)	**Center Amusement Co.**	**John & Drew Eberson**
CIRCLE THEATRE, New York, N. Y. (599)	**David Weinstock**	**Charles A. Sandblom**
VOGUE THEATRE, Vancouver, B. C. (1347)	**Vested Estates, Ltd.**	**Kaplan & Sprachman**
WILL ROGERS THEATRE, Tulsa, Okla. (866)	**Griffith Southwestern Theatres, Inc.**	**Jack Corgan**
UPTOWN THEATRE, Baltimore, Md. (1100)	**Uptown Amusement Corp.**	**John F. Eyring**
PIX THEATRE, LaPeer, Mich. (512)	**George F. Smith**	**E. R. Dunlap**
CENTER THEATRE, Fall River, Mass. (1390)	**Interstate Theatres Corp.**	**David Shapiro**
HOPKINS THEATRE, Hopkins, Minn. (1250)	**Engler Bros.**	**Perry E. Crosier**
STAR THEATRE, Tonawanda, N. Y. (980)	**Dipson Theatre Corp.**	**Michael J. De Angelis**
PARK THEATRE, North Little Rock, Ark. (650)	**Malco Realty Corp.**	**Bruggeman, Swain & Allen**
CANOVA THEATRE, Conover, N. C. (512)	**V. O. Sipe**	**Robert L. Clemmer**
CIVIC THEATRE, Detroit, Mich. (1450)	**Joseph Miskinis**	**Kenneth S. Frazier**

The Uses of "Black Light"

ITS EFFECTS AND APPLICATIONS

Two leading engineering authorities make an up-to-date survey of its progress and development as a medium of showmanship.

by C. M. Cutler and H. J. Chanon

"Black light" is the popular term applied to the phenomenon of luminescence or the conversion of invisible near-ultraviolet energy to radiation in the visible portion of the spectrum by means of fluorescent or phosphorescent materials. Although theatres have employed this phenomenon for many years in spectacular stage productions, the lack of convenient sources and materials has prevented its application in theatres primarily engaged in the presentation of motion pictures. New lamps and materials have made possible decorative and utilitarian applications as well as the spectacular, and the field is now of interest to all types of theatres. Theatre operators, architects, designers and decorators, lighting engineers, and technicians require design information, new technics of measurement, as well as data on sources and materials to enable them to design objectively for a definite brightness and pattern in theatre interiors.

Luminescence occurs when fluorescent or phosphorescent materials are exposed to near-ultraviolet radiation in the region of 3200 to 4000 A°, (Fig. 1,) Luminescence may likewise be stimulated by energy in the visible range, that is, above 4000 A°. However, in this case, the brightness produced by fluorescence is not apparent as it is masked by the visible light from the exciting source, and the effect is of little or no value in the theatre.

When luminescence exists only during the period of excitation by the near-ultraviolet source, the effect is called fluorescence, and when it persists for a period after the exciting energy is removed it is called phosphorescence. Materials having phosphorescent characteristics are sometimes more desirable for certain effects, although, in general, either type is suitable for use in the theatre.

The eye responds differently to the various colors in the visible spectrum. The eye is most sensitive to the shades in the green, yellow, and orange bands, as indicated by the eye response curve in Figure 1A.

A mercury lamp equipped with a certain type of filter (Corning No. 587), does not pass ultraviolet energy shorter than 3,000 angstroms. The transmitted near-ultraviolet causes no injurious effects. However, it can produce an unpleasant haze by causing the eyeballs to fluoresce. Some individuals seem to be more affected than others in this respect. Some tinted lenses of eye glasses also fluoresce. The theatre manager may therefore want to avoid installations where direct radiation from the source can reach the eyes within normal viewing angles.

Figure 1B shows one type of mercury lamp and the energy produced by it. Without filters of any kind, the lamp produces invisible near-ultraviolet energy, visible light in the 4,000 to 7,000 angstroms band, and infra-red energy above 7,000 angstroms. This lamp, without a red-purple filter, causes fluorescent materials to glow, but the predominance of visible light washes out or masks the effect.

In Figure 1C, a Corning "black light" filter (No. 587) has been placed in front of the mercury lamp. It will be seen that the near-ultraviolet and the infra-red, which are invisible, are transmitted, along with a very little of the visible in the violet. The percentage of visible light here is so small that it can be con-

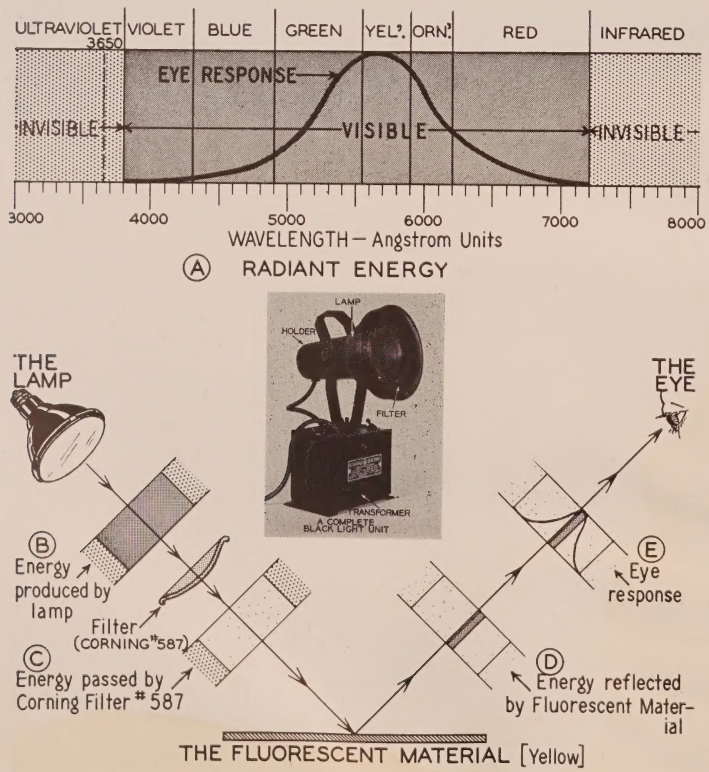


FIG. 1. Illustrating the conversion of invisible near-ultraviolet energy into "Black Light".

A. The radiant energy spectrum, which is of interest in theatre application.

B. Mercury lamp of the new 100-watt projector type.

C. Corning filter No. 587 absorbs the visible part of the spectrum and passes the near ultraviolet and some infrared.

D. Fluorescent material receives the near-ultraviolet energy and converts it into visible light. In this case, the conversion is to yellow light. Other materials fluoresce in different colors depending upon their chemical composition.

E. The eye response to yellow is greater than to the other colors in the visible spectrum.

sidered negligible for all practical purposes.

SOURCES AND FILTERS

There are many sources of near-ultraviolet radiating energy in varying degrees. The 100-watt and 250-watt capillary mercury lamps supply the need for small relatively potent sources of low wattage. Where long throws are required, the carbon arc, because of its high intensity, is generally used. The 1000-watt water-cooled capillary mercury lamp may also be employed. Filament lamps, particularly the photoflood types having high filament temperatures, likewise produce moderate amounts of near-ultraviolet energy. Unlike mercury sources, which can not be turned on and off quickly, filament lamps can be used on flashes or dimmers in applications where this service may be desirable and high output in near-ultraviolet energy is not required. The blue fluorescent lamp which has considerable energy below 4000 A°, has been found very satisfactory for some applications. The two and one-half-watt argon glow lamp produces near-ultraviolet energy in small amounts suitable for some uses.

The energy radiation from a 100-watt mercury vapor lamp of the capillary type equipped with a Corning No. 587 filter is in the region of 3650 A°, the band of maximum response for the majority of the commercial materials employed for black-light effects.

The visible radiation transmitted by some of these filters is of a predominant color, usually violet in character, and is therefore of uncertain value in providing seeing at the low levels of general illumination in theatre auditoriums. For such illumination, it is better to employ visible light, essentially white in character, from other sources. Good control of this lighting is required for least impairment of the fluorescent decorative patterns.

LUMINESCENT MATERIALS

Luminescent materials are found on the market today in the form of transparent lacquers, opaque lacquer-enamels, dyes for carpets and other fabrics, inks for lithography, water colors, plastics, liquid solutions, smoke powders, etc. Table I summarizes their relative response to near-ultraviolet radiation. The values given for lacquer-enamels, clear lacquers, and paints are averages for over 50 samples of various materials which were measured and grouped under the principal colors of the spectrum. This group contains both flourescent and phosphorescent materials. Under the remaining classifications, the values in some cases apply to single samples.

The net effectiveness of luminescent materials is determined not alone by their response; it is affected as well by the masking effect of any visible light which reaches the material and detracts from its characteristic appearance. The masking values listed in Table I are for threshold conditions; that is, they represent the amount of visible light which reduces the effectiveness of the luminescence to zero. Observations indicate that half of these masking values represent a practical upper limit. This is a subjective matter, and will vary with individuals and with the effect it is desired to produce. The modern materials are so efficient in their response that with reasonable care the masking light should not be a problem, particularly in theatre interiors and other places where low levels of general illumination prevail. In theatre foyers and in advertising displays the masking light must be given careful attention.

TABLE 1

1. There are other factors which must be considered in any specific installation or application. These are, principally, comparative cost, workability, undercoating, drying properties, depreciation, and reproducibility.
   A material may be very effective, but because of difficulty of application or high cost its use may not be practicable. Some of the products do not dry, often remaining sticky for weeks. There is limited information as to durability although some materials which have been treated with organic dyes show fluorescent response after 10 years. Important progress is being made in perfecting the characteristics of the several media.
   In the data given above the reproducibility and durability of these products have not been considered. All values represent initial responses.
2. The values have been corrected for masking light from the exciting source. Since all these brightnesses are 0.1 footlambert or above—the usual range of commercial applications—the fluor-factors are based upon the normal spectral-sensitivity curve of the eye. Where brightnesses are below 0.1 footlambert, as they may be in some conditions such as "blackouts" appropriate corrections must be applied to the extent that the Purkinje effect is present.
3. In determining the masking factor the entire surface of the specimen was illuminated by means of a projector equipped with iris diaphragm and a 500-watt 115-volt projector lamp operated at 85 volts to produce a color temperature of 2800 K. This color temperature approximates that of the extraneous light most frequently encountered in practice. The diaphragm was adjusted until the luminescent effect disappeared. The brightnesses of the two halves of the specimen were measured to determine the masking factor.

TABLE I—Luminescent Response of Some Commercial Materials

1	2			3
	Brightness			Masking Factor
Color	Footlamberts for incident near-ultraviolet radiation of 400 microwatts per sq. in.			Ft-L from Visible Ft-L from U. V. × 100
	Maximum	Minimum	Average	
Transparent-Lacquers, Lacquer-Enamels, Paints				
Red	3.4	0.4	1.7	100%
Orange	4.3	1.3	2.5	30
Yellow	5.4	0.9	4.0	100
Green	5.1	0.4	1.9	150
Blue	2.3	0.7	1.5	200
Violet	1.9	0.2	0.8	300
White	—	—	4.5	80
Phosphorescent Materials				
Red			3.4	60%
Yellow			5.0	60
Green			5.4	50
Blue			1.8	90
Invisible Colors				
White			2.3	150%
Green			1.7	150
Blue			1.5	400
Plastics (domestic)				
Red			1.1	
Green			1.1	
Carpets				
Red			0.4	
Yellow			0.8	
Blue			0.6	
Brown			0.8	
Tan			0.3	
Cream			0.6	
White			1.1	
Pink			0.1	
Papers				
Fuchsia Pink			0.4	
Light Yellow			1.5	
Sea Green			0.7	
Snow Blue			0.9	

GENERAL APPLICATIONS

The use of fluorescent-treated murals, medallions, and drapes, etc., introduces a new type of decorative treatment as well as a new form of utilitarian lighting for theatre interiors. This approach makes possible the use of large expanses which may embrace the entire ceiling or walls, or the use of localized treatment. In either approach, the near-ultraviolet energy, which in invisible to the eye before it strikes the fluorescent material, is converted into visible light, and follows the same laws as ordinary light. The radiation may be controlled by properly selected materials, and shielded in the same way as the energy from the familiar filament type of light-source.

Since black-light sources are relatively inconspicuous, the problem of shielding and locating them is generally simpler. While the beam or flood of black light may overlap a particular pattern or area, the light emission is confined to the surfaces upon which the fluorescent material is applied.

Recommendations for desirable amounts of near-ultraviolet radiation for effective decoration of various parts of a theatre may be based upon the general lighting levels in these areas and the masking effect of these brightnesses upon the resultant fluorescence.

Because of the variation in response of various fluorescent materials and the different efficiencies of equipment, only a general range of energy can be suggested here. For the 100-watt type H-4 and the 250-watt type H-5 mercury sources equipped with Corning No. 587 filters, the order of 0.5 to 1.0 watts per sq. ft. gives a basis for estimating the approximate number of units required for average throws in the theatre.

Having determined the energy requirements, it is only necessary to properly space the required number of ultraviolet sources for uniformity or for the desired relative excitations of the various parts of the pattern. Consideration must be given to the fact that a wide range of

FIG. 2. Fluorescent mural over exit door at front of auditorium. Black-light unit below mural in architectural element over door.

sizes of near-ultraviolet sources is not available; which places some limitations on this procedure. Where sufficiently extensive fluorescent areas are employed, they may themselves supply all the illumination required for certain classes of interiors.

Table II lists acceptable lighting values for comfort in the theatre and recommendations for the amount of near-ultraviolet radiation to produce an effective display of medallions, murals, draperies, and carpets.

During the process of treating surfaces with fluorescent material it is well to observe the colors and their relative effect under black light in surroundings as nearly similar as possible to the auditorium. This procedure is often helpful in determining satisfactory placement for the black-light units, as well as in determining the amount of energy which will be required.

TABLE II—Near-Ultraviolet Application in Theatres

Location and Acceptable Lighting	U. V. Radiation requirement in Microwatts per square inch: High Response Colors	Low Response Colors
Around Screen—1/25 to 1/50 of Screen Brightness; 10-20 foot-lamberts screen (no film)	60	120
Ceiling above Screen—2 to 3 foot-lamberts	100	400
Aisles—0.2 to 0.25 footcandles	25	100
Walls—3 footlamberts	100	400

TREATMENT OF LARGE AREAS—Large fluorescent-treated wall or ceiling areas of fairly uniform low brightness, which are not broken up by designs that produce high contrast, create an atmosphere under which pictures may be viewed advantageously. The utilization of black light is generally the best under such conditions. From a complete blue sky ceiling, for example, enough near-ultraviolet energy may be converted into visible light by the fluorescent material to result in a low order of illumination throughout the entire auditorium. In this case, the color of the illumination will predominate in blue, and if a more natural color for the appearance of clothes and people is desired, it may be necessary to offset the blue by well controlled down-lighting from a separate system of filament sources. The quality of the illumination is dependent upon the colors of fluorescent materials used and their distribution throughout the auditorium. In general, the warmer, more flattering tones are preferred.

The placement of the black-light sources under these conditions is similar to that of general auditorium lighting. The sources can be concealed in coves below the ceiling line and aimed for most uniform distribution of energy. More uniform distribution is obtained as the distance of the source from the ceiling is increased. Wall urns, pilasters, and other architectural elements offer suitable locations.

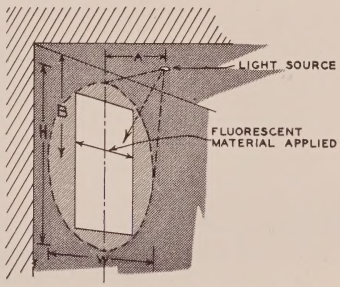


FIG. 3. One method of energizing wall panels treated with fluorescent material. See Table III for coverage with equipment having beam spread of approximately 30 degrees.

LIGHT-EMITTING DECORATIONS — Individual wall murals or patterns can be rendered in sharp or graded outline with fluorescent materials. Variations in brightness as well as in color can be obtained readily. There is no need to control the black-light beam to fit the decoration exactly. It is therefore particularly applicable to intricate designs.

Light-emitting murals on the proscenium wall can be utilized to relieve the high contrast between the screen and surrounding areas, and, at the same time, produce a decorative effect. A simple arrangement for energizing fluorescent-treated murals is shown in Fig. 2. Here the space above the exit doors has been utilized to conceal a 100-watt mercury lamp and suitable equipment.

Where the proscenium wall does not lend itself so readily to placement of the energizing source below the mural, a simple installation of a unit recessed in the ceiling can be made as shown in Fig. 3. More uniform illumination of the panel is possible by this method as more latitude in dimension A is usually practicable. Table III indicates coverage for different dimensions from a single unit having a 30-degree beam-spread.

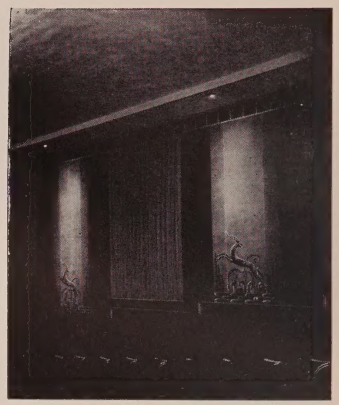


FIG. 4. A striking effect simulating an outdoor scene is obtained with these wall murals due to the illusion of depth imparted by a blue background. The highlights on the gazelles are in warmer colors, amber and gold, and although the mural is flat, the appearance is similar to that of a three-dimensional object in a niche.

Fig. 4 shows an installation of side-wall murals energized as suggested in Fig. 3. Fluorescent colors having high response were selected for use on the gazelles. Thus they were accentuated in the higher brightness even though they were farthest removed from the energizing source.

TABLE III

Approximate Coverage for Reflector of 30-Degree Spread, Used as in Fig. 5. (All Values Are in Feet)

A	B	H	W	Radiated Area (Sq-Ft)
	10	13	7	64
8	15	26	9	185
	20	56	12	510
	10	12	8	76
12	15	19	10	180
	20	31	13	310

Continuous decorative mands or panels (Fig. 5) may be energized by units of the type shown for carpet illumination (Fig. 9). The rectangular shape distribution with a beam-spread of approximately 10 x 80 degrees is desirable for this application. The coverage obtained for various sizes of murals and for different locations of the unit from the wall are shown in Table IV.

TABLE IV

Approximate Coverage for Reflector with Rectangle Beam-Spread of 10° x 80°, Used as in Fig. 5. (All Values Are in Feet)

A	B	H	W	Radiated Area (Sq-Ft)
	10	5	14	70
4	15	12	20	240
	20	23	26	600
	10	4	16	64
8	15	7	22	145
	20	10	28	280
	10	4	20	80
12	15	6	25	150
	20	8	30	240

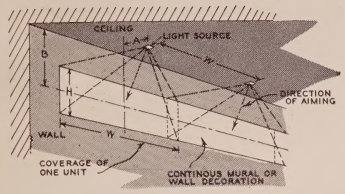


FIG. 5. Rectangular beam of black light more nearly fits panels of the same proportion. Downlighting unit such as shown in Fig. 9 is particularly applicable for continuous murals. See Table IV for coverage with equipment having beam spread of 10 degrees x 80 degrees.

ENERGIZING FLUORESCENT CARPET—Self-luminous carpet, in addition to its decorative effect, is of value as a means of traffic or directional lighting. In contrast to the successive spots of light as produced by aisle illumination with low-wattage filament lamps recessed or attached to the seats, fluorescent carpet can be made to glow uniformly in well designed black-light installations.

In order to use the energy most efficiently, it is desirable to confine it as much as practicable to the fluorescent carpet. An effective method is to use downlighting equipment recessed in or suspended

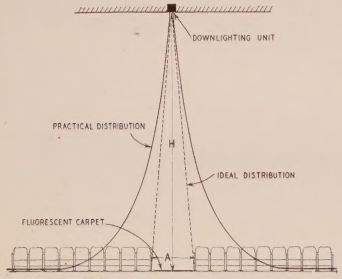


FIG. 6. It is desirable to confine the near-ultraviolet energy as much as possible to the aisle. Maximum efficiency can be thus assured and the spill of near-ultraviolet energy is minimized.

from the ceiling of an auditorium. Fig. 6 shows a cross-section of a typical theatre auditorium with equipment placed directly over the aisles.

A reflector of parabolic contour has the property of collecting light from a source at the focus, and redirecting it into a concentrated beam in the case of the

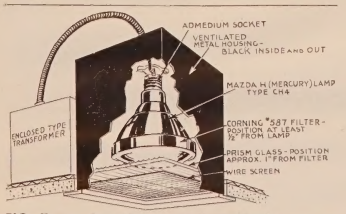


FIG. 7. A downlighting unit employing an integral projector type 100-watt mercury lamp. Recommended for the lower ceilings where a high degree of control is not necessary and where a low order of general illumination exists in the auditorium.

paraboloid, or into a thin wedge in the case of a parabolic trough. A concentrated beam would be applicable from above if units were installed at very close spacing. This spacing can be increased by directing the beam through a prismatic lens which spreads the light along the aisle but not crosswise. Such a prism glass is included in the unit in Fig. 7. A parabolic trough redirects the light to a rectangular area of greater relative length without the intervention of any spreading glass (Fig. 8).

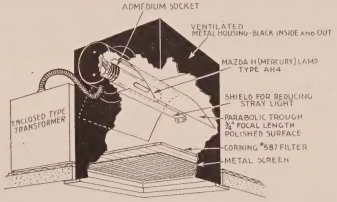


FIG. 8. A parabolic trough downlighting unit employing a 100-watt mercury lamp type AH-4. This unit directs a ribbon of near-ultraviolet energy to the fluorescent carpet.

The lamp in Fig. 7 is of the capillary mercury type (100-watt CH-4) with integral reflector of paraboloidal form producing a relatively concentrated distribution. A Corning No. 587 filter screens out the major part of the visible radiation. Considerable energy is absorbed in the filter, and it is therefore recommended that a coarse wire screen be included below the filter as protection in the event of glass failure. For fanning out the radiation along the aisle, it is desirable to select a prism glass which directs more of the rays toward the front of the auditorium than to the back.

In Fig. 8, the light-source is identical with that in Fig. 7. However, it is incorporated in a tubular instead of a projector bulb. The lamp is placed in a separate parabolic trough so that it lies in the focal axis and off-center with respect to the opening of the reflector. (Fig. 8.)

This directs a greater proportion of the energy toward the front of the auditorium, (Fig. 10), thus producing greater shielding for the audience from both the near-ultraviolet and the small amount of visible violet light transmitted by the filter.

Tests of response have been made on three patterns of fluorescent carpet. In Fig. 9 their appearance is indicated when illuminated with visible light and with black light. Since different colors are em-

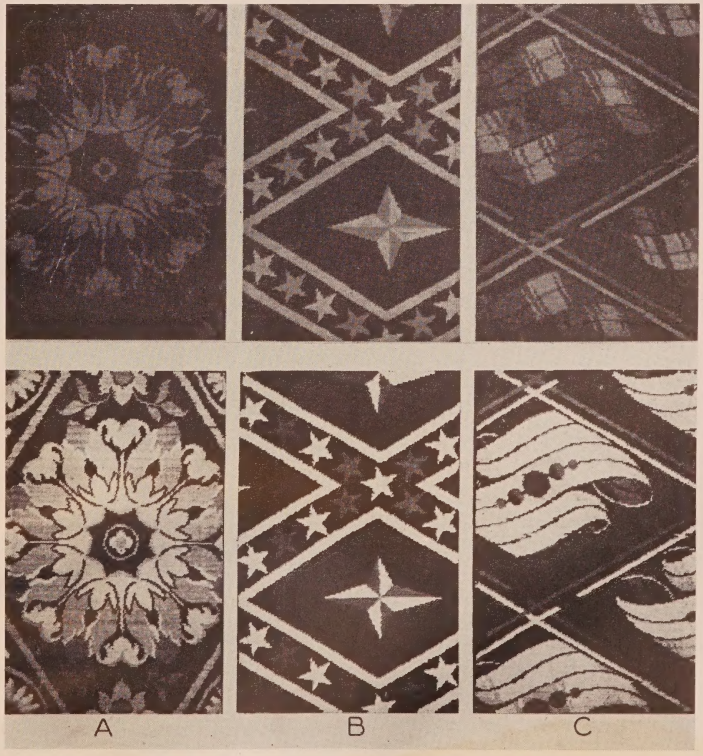


FIG. 9. Fluorescent carpet patterns, shown as illuminated with (top row) visible light and (bottom row) black light. Pattern B has approximately 50 per cent more brightness than A or C.

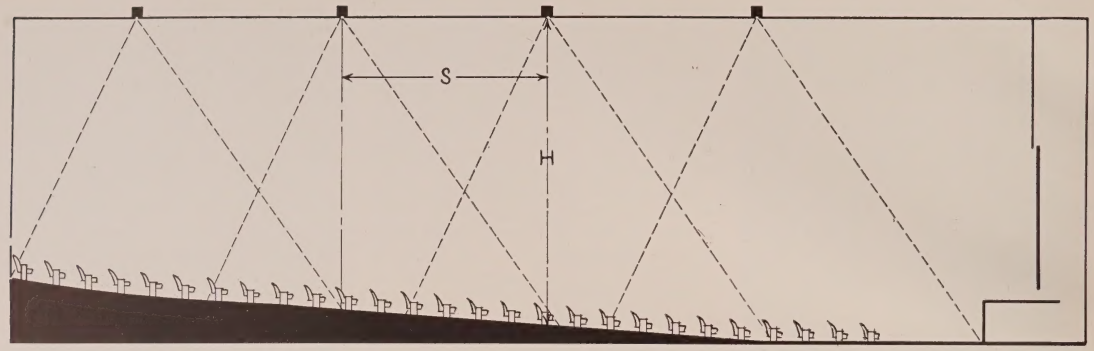


FIG. 10. The asymmetric distribution directs more of the near ultraviolet radiation toward the front of the theatre. Greater shielding results for those seated in the auditorium.

ployed to make up the patterns, certain parts of the carpet will be brighter than others. Patterns A and C have approximately the same general brightness whereas pattern B is fully 50 per cent brighter. Experiments in an auditorium, with equipments of the type suggested in Figs. 7 and 8, and with carpet types A and C, furnished the data on spacing for the different mounting heights given in Table V.

TABLE V

Spacing Requirements for Fluorescent Carpet Downlighting Units

Unit	Ceiling Height (Feet)	Spacing (Feet)
Fig. 8 or Fig. 9	20	18-20
Same	25	22-26
Fig. 9	30	28-32
Same	35	24-28
Same	40	20-24
Same	50	16-18*
Same	60	14-16*

* Spacings can be doubled if twin units are employed at each location. This may be desirable in some architectural and decorative treatments.

The use of a two and one half watt argon glow-lamp in regular aisle lights which operate on standard lighting circuits without a transformer has a number of shortcomings. The near-ultraviolet energy is of a low order, and accurate control of the energy is not practicable. In addition, the effect is likely to appear as spotty as the conventional method using visible light, unless one or more lamps are placed in every aisle seat.

The above suggestions for energizing fluorescent carpet do not cover all effective equipments and methods. Satisfactory carpet brightness has been reported where the only energy striking the carpet came, merely incidentally, from mercury units directed at side-wall or ceiling murals treated with fluorescent paints. However, where no use of fluorescence is contemplated other than on carpet, the downlighting systems suggested, or other designs which incorporate close control, will be found most effective.

The authors acknowledge their indebtedness to Prof. John O. Kraehenbuehl, of the University of Illinois, and to F. M. Falge, of the General Electric Company, respectively, for their collaboration in the technical and application aspects discussed herein.

★

C. M. Cutler, a native of Montana, attended the Engineering School of the University of Montana, and studied at the Art Institute of Chicago. After several years as designer and superintendent of the Scene-In-Action Corporation, he joined the Nela Park Engineering Department of the General Electric Company, Cleveland, in 1929. There he has specialized on all phases of theatre, display, festival, and spectacular lighting. During a large part of 1933 and 1934 he was stationed at Chicago as consultant on lighting to the Century of Progress Exposition and, more particularly, to the large exhibitors whose many buildings and displays formed a major part of the Century of Progress spectacle. His achievements at Chicago brought him a Coffin Award, and caused the management of the Texas Centennial Central Exposition to invite him to join their staff with full responsibility for illumination. The Dallas Exposition set a new high in several features, but the aspect that attracted most attention and inspired most praise was the lighting to which Cutler had brought creative and technical ability. Later in 1936, at the invitation of the Department of Commerce, in connection with the Centennial of the American Patent System, he lighted the ballroom of the Mayflower Hotel at Washington to depict the progress of the lighting art. From 1937 to 1939 he spent most of his time in New York as the representative of the General Electric Company in matters pertaining to the lighting of the New York World's Fair and the buildings of private exhibitors. At the present time he heads the Lighting for Selling activities of the Nela Park Engineering Department.

★

Henry J. Chanon has Electrical and Professional Engineering degrees from Ohio State University. He joined the Nela Park Engineering Department of General Electric Company in 1929, and is nationally known for his pioneering work in street and highway lighting reported in three papers in Illuminating Engineering. For this work he received an award from the Charles A. Coffin Foundation. In the last few years, he has been devoting the majority of his time to theatre lighting, electrical advertising, and general fluorescent illumination. "The Technology of Brightness Production by Near-Ultra-Violet Radiation" is one of his more recent works in collaboration with John O. Kraehenbuehl, University of Illinois.

THE CASE OF
The Dual Auditorium

The owner of the FIRST theatre to be so designed, surveys the patron acceptance of this solution to the "Dual Bill" problem.

by James Edwards, Jr.

As a result of the nation-wide controversy over the single-bill—double-bill problem, we decided to settle the question once and for all to our own satisfaction by the erection of a motion picture theatre that would cater to and please both types of fans.

In a Saturday Evening Post article Samuel Goldwyn said, "The double feature is killing the movie industry and the panic is on in Hollywood. The long shows discourage attendance and three out of four people want single-bills. Hollywood is sick because of the diminished box office receipts". Goldwyn proposed legislation or Government regulation that would result in forcing all theatres to show single-bills.

In that event, Hollywood really would be sick, because while the single-bill patron would be pleased, what would happen to the double-bill patron? The American Institute of Public Opinion (Dr George Gallup) on Aug. 9, 1940 released the following: "Bad pictures rather than dual-bills are keeping people out of the movie theatres. This completed poll shows that while the majority of people in the lower income groups prefer double-bills, people in the middle and upper income brackets are in favor of singles, but these people would not mind doubles if both of the pictures were good."

The long and short of it was simply that some people wanted two features, some did not.

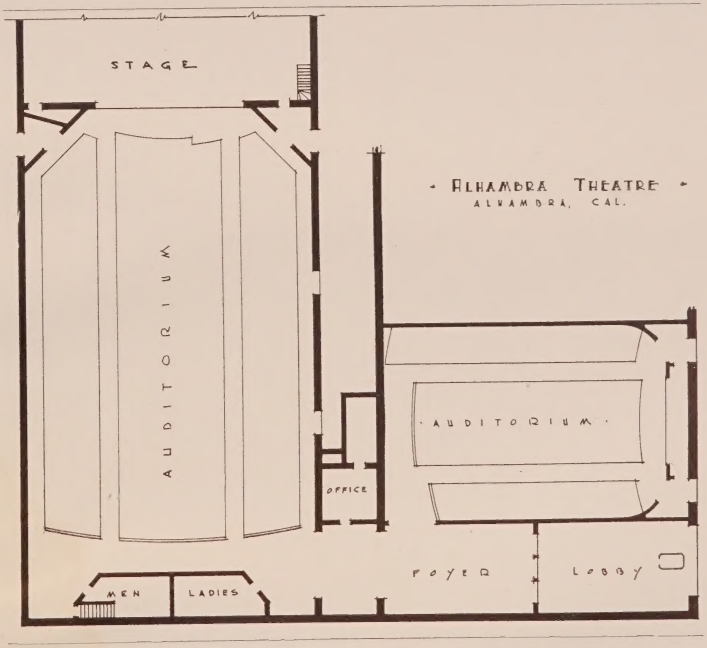
The average American theatre has on its hands the job of pleasing three separate and distinct types of patrons: the single-bill patron, the double-bill patron, the double-bill patron who has already seen one of the features on the twin-bill program.

Why not a theatre that could please all three of these types? And so, after two and one-half years of planning, my partners, Mike Rosenberg and Harry Vinnicof and I constructed the Alhambra Annex.

Our original Alhambra consisted of the conventional lobby, foyer, and auditorium. With the addition of the Annex, this theatre now has two separate auditoriums, each complete with its own projection room and stage. These two auditoriums connect to one common foyer with one lobby entrance and one box-office.

This theatre shows double-features on all programs as do practically all theatres in Southern California. Each auditorium shows the same double-bill nightly, but the features are so alternated and reversed that while 'A' feature is shown in the main auditorium, 'B' feature is showing in the Annex auditorium. Upon the completion of the screening of 'B' feature in the Annex, it is then shown in the main auditorium, while 'A' feature is simultaneously projected in the Annex.

For example: Let us say the current double-bill at the Alhambra Theatre is "Ball of Fire" and "The Corsican Brothers", (They are booked strong in the Los Angeles territory). You are a single-bill enthusiast, and you care to see only "Ball Of Fire". At any time you enter the theatre "Ball Of Fire" will be playing in one or the other auditoriums. A ticket is purchased at the box-office, and as you enter the foyer you read a two-way, directional, neon sign which states: "Annex, now playing, "Ball Of Fire"; and, Main Auditorium, now playing, "The Corsican Brothers". So, you go into the Annex and see "Ball Of Fire"—but should you have been unfortunate enough to have missed its beginning, you wouldn't have to sit through the second feature to see the start of "Ball Of Fire" for, upon its completion in the Annex, you would simply walk into the Main Auditorium take a seat, see a short subject or two, and "Ball Of Fire" would follow.



The double-bill fan, however, enters either of the auditoriums and upon the completion of a feature, he simply remains in his seat as the other feature will soon follow.

The first run theatres in Los Angeles generally play an "A" and a "B" picture together, but the better class, subsequent, and out-of-town theatres play two 'A' pictures on the same program. The movie patron who sees an 'A' picture in the first run generally has trouble in finding a neighborhood theatre that is not showing this same 'A' picture with another 'A' hit that played first-run simultaneously. Many of the neighborhood theatres play the same combination of two films; hence, if a patron has already seen one, he has some trouble finding a theatre that is playing the picture he wants to see without forcing him again to sit through the one he has already seen. The dual-auditorium type of theatre solves his problem because any time he enters he can see the picture of his choice without having to stay through one he has previously witnessed.

The Alhambra and Annex gives the single-bill patron his choice of one of two features (instead of just one as in

the conventional single-feature house), and he does not have to rush home from work and adjust his evening to fit the theatre's schedule, inasmuch as he knows that either feature of his choice will be shown at approximately seven, nine and 11 o'clock nightly. The double-bill customers who wish to see both "hits" may have their selection of either auditorium wherein they just sit and sit as the two will show in each auditorium.

THE MAIN AUDITORIUM seats slightly less than 1000 persons while the New Annex seats less than 500. The Annex is small and intimate, yet it is the epitome of comfort, convenience, and decorative beauty, designed to please the more fastidious. With a simple dignity, the auditorium takes its decorative theme from classic murals appliqued on the sidewalls and originated by Tony Heinsbergen, Los Angeles artist.

The side and rear walls are treated with acoustical material for proper sound absorption, and its color is maroon as a striking background for the mural art.

While the seating capacity of the main auditorium is almost twice that of the Annex, we have found that many people prefer the "coziness" of the smaller auditorium.

THIS DUAL AUDITORIUM theatre requires two fully-equipped projection rooms, but only one marquee, one box-office, and one lobby and foyer. However, its ability to satisfy all types of audiences has repaid us for the added investment of the additional auditorium and additional projection room.

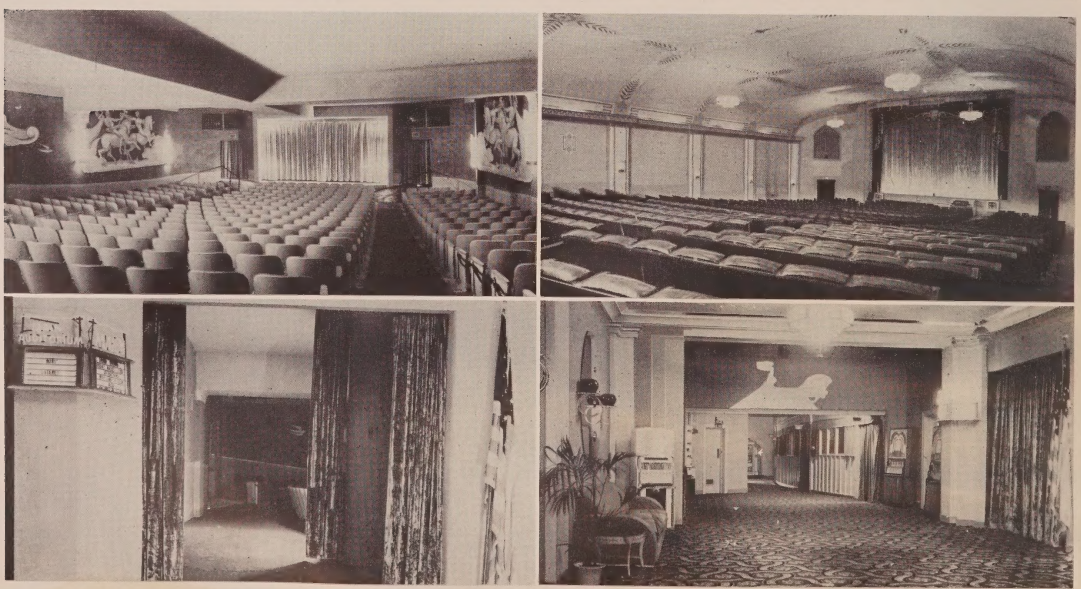
James Edwards, Jr. was born in Los Angeles in November, 1906. He graduated from the Alhambra High School in 1925, and immediately went to work pushing cars around in an auto park. Eventually he owned a few auto parks and purchased the lease on the closed Mission, Montery Park. During the intervening 11½ years the Edwards' Theatres Circuit has been built until it now comprises 21 houses. A number of flops were purchased, and by really hard work successful ventures were made out of them. "Credit for the success of the twin-auditorium theatre is not mine alone," says Edwards, "Our general manager, Myrl Kavanaugh; our district manager, Gordon Mersman, and our chief Projectionist, Lyle Roderick, each spent a lot of their time to work it out. While this dual auditorium house was not the first theatre that we built, it was the first that was designed 100% by us without the aid of an architect or engineer. The idea nucleus of the Alhambra and Annex came from Mike Rosenberg, who said, 'Someday someone is my friend and partner of our four Alhambras going to build a theatre with two auditoriums to satisfy the single-bill fans as well as the marathon sitters'."

The patron buys but one ticket which admits him to the foyer. From there on he is on his own, and may freely enter either auditorium, or both. Surprisingly enough, after the patrons have read the inner foyer directional sign (Which copy is changed by an usher as the features are changed from one auditorium to the other) and selected the auditorium, the traffic from one theatre to the other is not heavy; which is a good indication that most folk prefer the double-bill. A careful analysis of the situation has convinced us, however, that there are just enough good, substantial, dyed-in-the-wool single-bill fans to have made this venture successful.

We, at one time, operated this twin auditorium plan with the Annex showing single-features only, and the Main showing the doubles, but we were many times at a loss to determine which of our "A" pictures was the bigger of the two to show in the Annex. Experience has convinced us that the present policy of showing both features in each auditorium and alternating them is the policy that our patrons prefer.

The novelty of this theatre has brought us many new faces, new faces that have turned into steady patrons who have been enthusiastic over the fact that they can come to the Alhambra almost any hour of the evening, and see a picture from its beginning and enthusiastic because it is no longer necessary for them to adjust their dinner hour to fit the show schedule.

This venture has merit which is proven by just one thing, The box office.



ALHAMBRA THEATRE, ALHAMBRA, CAL. Top, left:—The auditorium of the ANNEX which is very modernly designed and equipped. Right: The auditorium of the Main theatre which is obviously older in design. Note the large bank of California arm chairs. Lower, left:—The direction sign in the main foyer which is changed at each "break". Right:—Joint foyer and toilet rooms serve both theatres.

Joseph W. Holman has practiced architecture in Nashville, Tenn., for 30 years, during which time he has been responsible for the design of almost every type of building. Included as a part of his general practice have been approximately 70 theatres. A study of the work he has done in this field would include many innovations which have become accepted standards in motion picture theatre design. His work has been functional and practical, with a sane approach to showmanship. Although he has been very busy handling a large volume of work, he still has found time to serve as president of the National Council of Architectural Registration Boards. Also he is secretary-treasurer of the Tennessee State Board of Architectural and Engineering Examiners, and he is a member of the American Institute of Architects.

THE THEATRICAL POSSIBILITIES OF *Indirect Lighting*

Both its value in soft interior decoration and in protecting the patron's vision lines are developed by a leading architect.

by Joseph W. Holman

A LIGHT SOURCE should never be visible to the eyes of patrons in the modern motion picture theatre.

This is more important in the interior of a theatre than in any other business house because the product at theatres is sold in semi-darkness. For the patron to have to look at a direct light after the eyes have been focused to the dimly lighted auditorium is a discomfort. Then again, to look at a direct light source upon entering or leaving the auditorium magnifies the focal adjustment that the eyes must make, and therefore causes a sudden strain which frequently makes a lasting unpleasant impression.

A proper lighting scheme for the interior of a theatre should provide a gradual transition from the brilliancy of the marquee to the darkness of the auditorium. For example, the lobby should be bright and the standee space half way between that of the lobby and the auditorium.

OF THE VARIOUS KINDS of lighting, incandescent, fluorescent lamps, or fluorescent tubing, the latter has the greatest possibilities. The tubing can be bent to any shape and also assures continuous light without spotting. Fluorescent tublar lighting is the most economical illumination yet developed. The current consumption is low; there is no lamp replacement and this type of light operates off a transformer which lasts for years. The light is much cooler than incandescent, which results in a saving in air conditioning costs.

Fluorescent tubing is available in a variety of colors, which can be combined and adapted to produce interesting theatrical effects. For general lighting the fluorescent white is too frigid however by combining two tubes of white with one of gold or rose a pleasing light is produced. Pure light colors tend to create weird effects on paint or other colors, and if not carefully studied will result in a complete washout of any color in the space. Therefore, pure light colors should not be used except for decorative spots. However, for picture lighting of the auditorium, dark blue is very satisfactory. Wall colors are not affected because the darkness has already caused the colors to become muddy. Blue also produces a pleasing atmosphere for viewing the picture. The blue light source should not be too close to the screen, however, as it will change technicolor screen impressions.

THEATRICAL EFFECTS obtained with pure colored lights may consist of mirrors in the lobby or standee space with a corona of light around the edge from a light source behind the mirror. Handrails with a continuous light source inside the handrail shining down on the stair treads are effective. Other suggestions are color illumination for standee rails, candy cases, milk bars, drinking fountains, or glass patterns in floors with

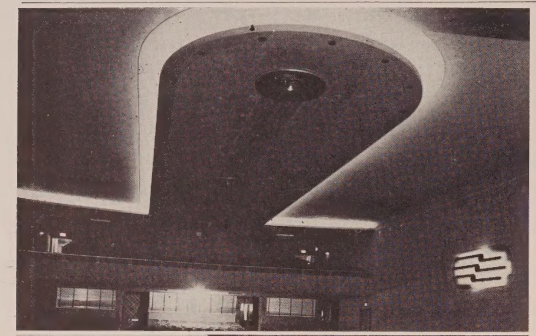
Details for the triangular tower.

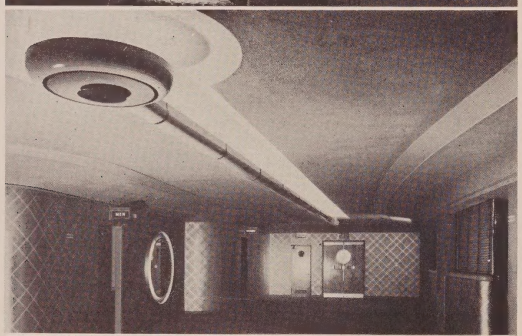
lights below. Also effective is the use of blue illumination for entries to toilet and powder rooms. The use of decorative spots of light color in the auditorium should be discouraged, because any distractions from the picture requires too great a mental concentration and causes fatigue.

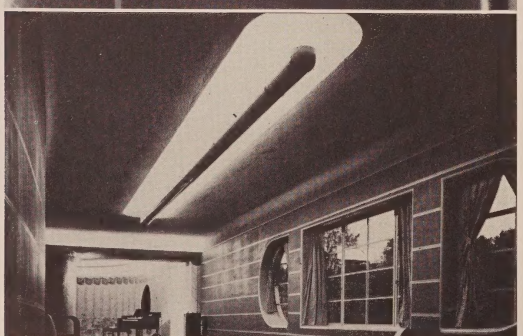
For exterior lighting, indirectly lighted surfaces of signs, towers, or marquees create a subtle showmanship which is effective and pleasing. As in interior lighting, the best light source is fluorescent tubing.

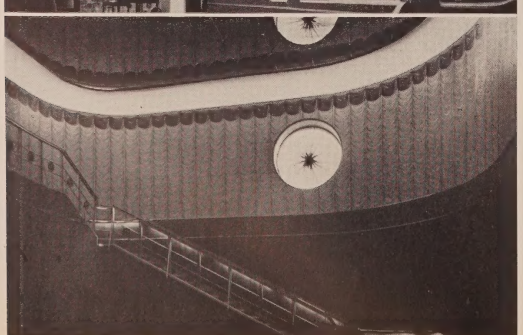
Signs or ornamental motifs which are made up of exposed fluorescent tubing or incandescent lamps set over a background of indirect colored light make an interesting contrast. Blue or green light backgrounds for attraction boards are very effective. Indirect lighting for marquee soffits is not as brilliant as exposed light sources.

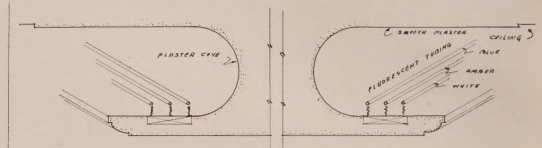
And finally, the use of mirrors in connection with the marquee will reflect lights and greatly increase the impression of light.



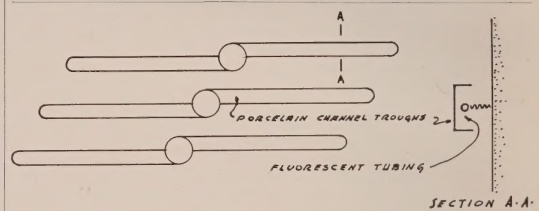




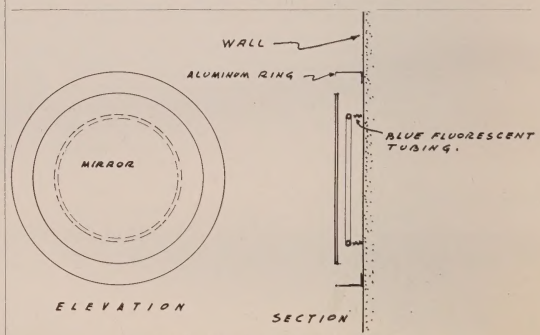




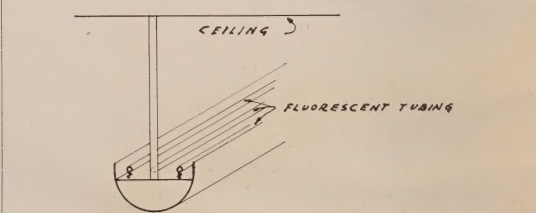
Details for auditorium ceiling cove lighting.



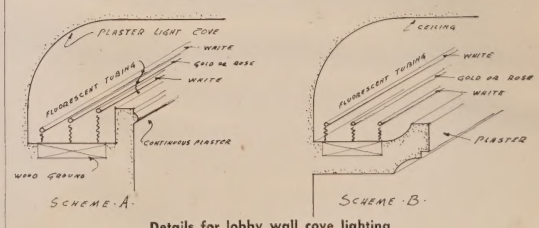
Details for auditorium side wall fixtures.



Details for mirror in standee area.



Details for suspended fixture for lobby and balcony.



Details for lobby wall cove lighting.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

1

1941

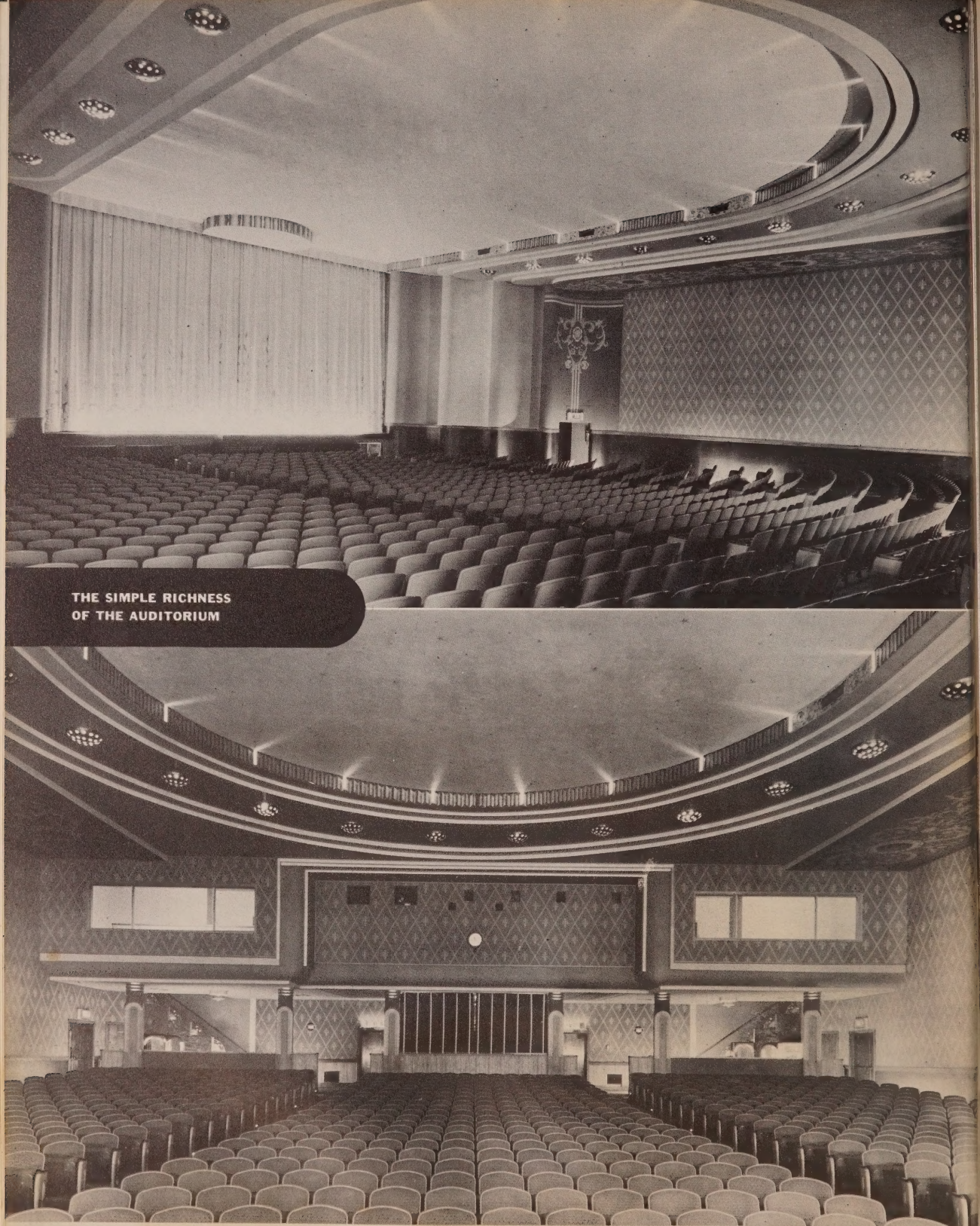
THE NEW

Apex

WASHINGTON, D. C.

The Indiana limestone front of this new house, with its simple but intelligent design, reflects immediately the good taste of the interior treatment. The auditorium walls have been covered with maroon tapestry over spun glass and have a leatherette wainscot. The ladies' and men's lounges each have their own distinctive treatment. Outstanding is the men's lounge, the wall treatment being ordinary cinder block, painted and pointed.

Owners Fred S. Kogod and Max Burka assigned Baltimore's John J. Zink, A.I.A., to design and supervise construction.



THE SIMPLE RICHNESS
OF THE AUDITORIUM

REFERENCE FACTS:

APEX THEATRE

WASHINGTON, D. C.

Owners: Fred S. Kogod and Max Burka

Architect: John J. Zink

Size of Lot: 105 x 150

Seating Capacity: 1000

Acoustical Treatment—Damask over Fibreglass. Manufactured by U. S. Gypsum Co.

Air Conditioning—Manufactured by York Ice Machinery Corp.

Coinmeter—Manufactured by Johnson Fare Box Co.

Candy Machines—Installed by Berlo Vending Co.

Carpets—Manufactured by Hinkel & Co., Washington, D. C. (Bigelow-Sanford Co.)

Chairs—Manufactured by Heywood-Wakefield Co.

Changeovers—Weaver. Manufactured by Weaver Mfg. Co.

Curtain Controls—National Curtain Control.

Decorator—Paramount Decorating Co.

Display Frames—Extruded aluminum. Manufactured by Garden City Co.

Drinking Fountain—Voigt. Manufactured by Voigt Co.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—Manufactured by C. B. Hellmann. and Voigt Company.

Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.

Projection Machines—Simplex E-7. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by Potomac Rubber Co.

Screen—Walker-white plastic molded. Manufactured by Walker-American Corp.

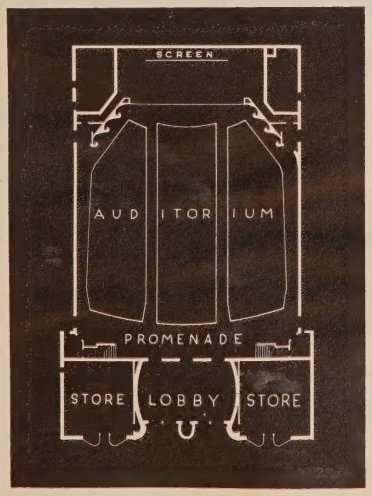
Sign and Marquee—Beacon Sign Co.

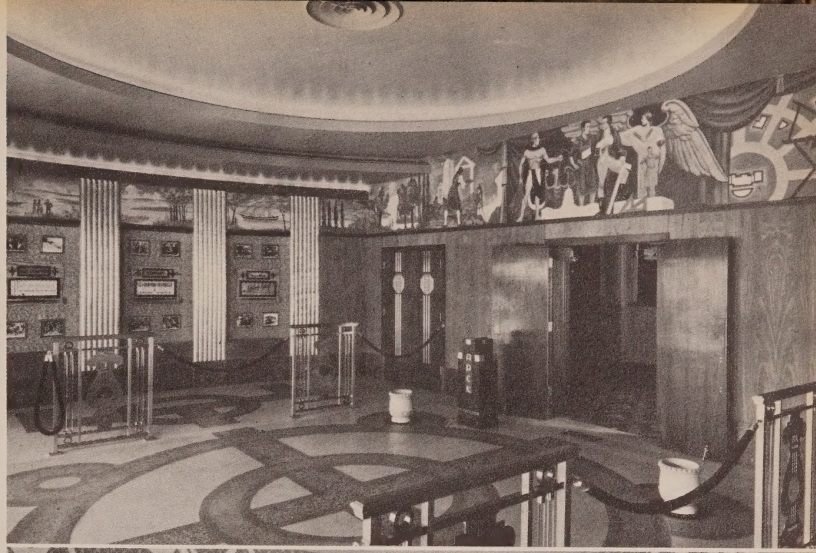
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

Sound—RCA. Manufactured by RCA Mfg. Co.

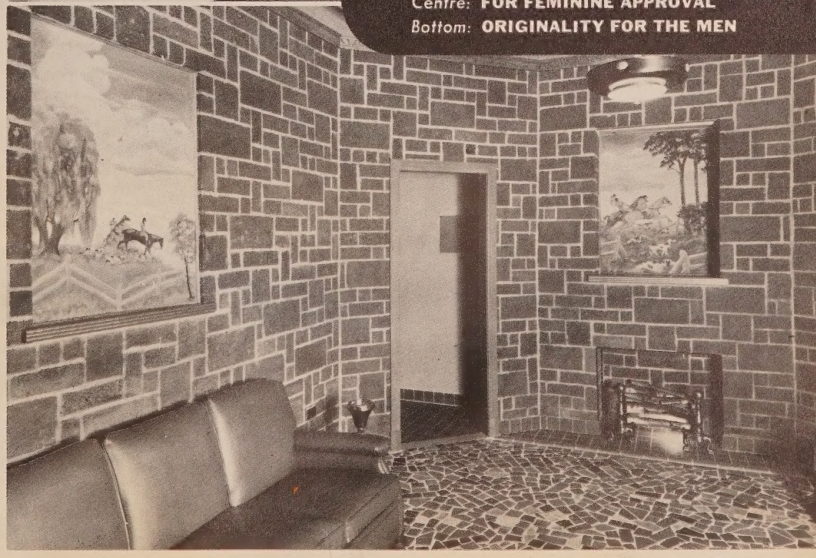
Supply Dealer—National Theatre Supply Co.

Ticket Register—Timco. Manufactured by Ticket Issuing Machine Co.





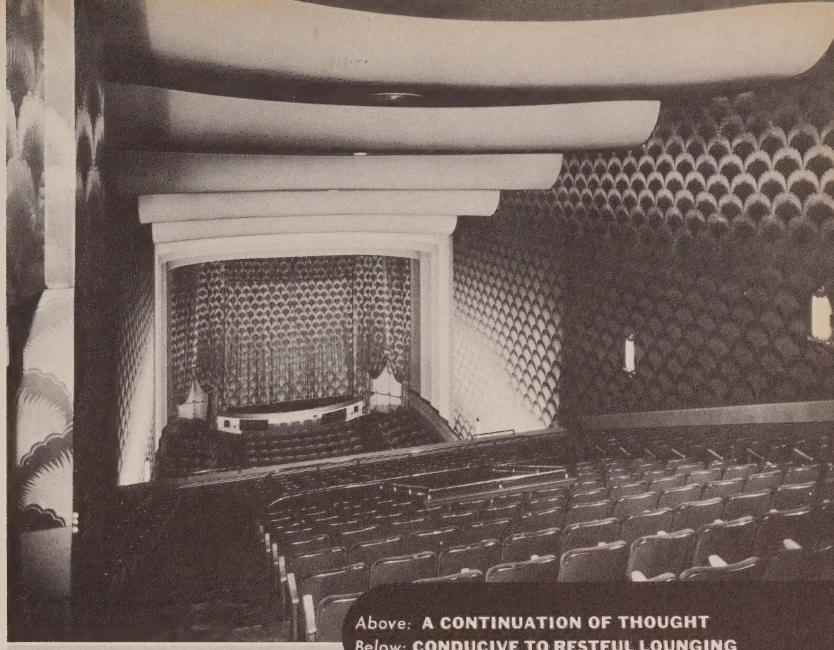
Top: **A DISTINCTIVE LOBBY**
Centre: **FOR FEMININE APPROVAL**
Bottom: **ORIGINALITY FOR THE MEN**



THE NEW
Harris-Manos
JEANNETTE, PA.
CATALOGING THE NEW IN DESIGN AND EQUIPMENT
2
1941
HARRIS
2 GOOD FEATURES
DOUBLE ALIBI
MAN FROM MONTREAL
BANK NIGHT 500
SOON
G W T W

This modern deluxe cinema was recently erected in Jeannette, Pa. (15,000 inhabitants). The owner, Michael Manos, chose architect Victor A. Rigaumont, Pittsburgh, to design and draw the plans for its construction. (All designs are copyrighted.)

The front has been constructed entirely of structural glass. The modern marquee is unusual in that its interior serves as a storage space for the sign letters and permits the servicing of the sign from within by means of a trap door in its roof. It is not necessary to climb ladders from the sidewalk to change attraction billing.



Above: **A CONTINUATION OF THOUGHT**
Below: **CONDUCIVE TO RESTFUL LOUNGING**

REFERENCE FACTS:

HARRIS-MANOS THEATRE
JEANNETTE, PA.

Owner: Michael Manos

Architect: Victor A. Rigaumont

Size of Lot: 40 x 123

Seating Capacity: 900

Acoustical Treatment—Damask over rockwool. Manufactured by Geo. R. Hall & Sons. Acoustile manufactured by Celotex Corp.
Air Conditioning—Well water system. Manufactured by The Trane Co.
Candy Machine—Installed by Berlo Vend. Co.
Carpets—Manufactured by Philadelphia Carpet Co.

Chairs—Manufactured by Ideal Seating Co.
Coinchanger—Brandt Automatic Cashier Co.
Construction Material—Structural steel, concrete, face brick, Carrara and Vitrolite structural glass. Carrara manufactured by Pittsburgh Plate Glass Co. Vitrolite manufactured by Libbey-Owens-Ford Glass Co.

Curtain Controls—Vallen. Manufactured by Vallen, Inc.

Decorator—Arnold Picchi.

Draperies and Stage Curtains—Manufactured by Mork-Green.

Lighting Fixtures—Manufactured by Ruby Lamp Co. and Pittsburgh Electric Co.

Projection Lamps—Brenkert. Manufactured by Brenkert Light Projection Co.

Projection Machines—Motiograph. Manufactured by Motiograph, Inc.

Rectifiers—Benwood-Linze Co.

Rubber Mats—Manufactured by O. W. Jackson Co.

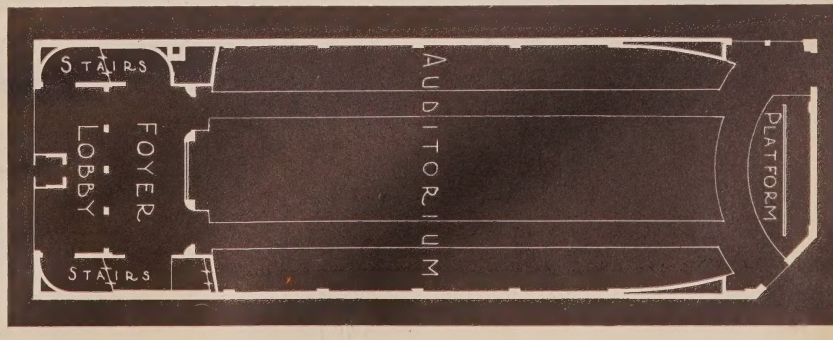
Screen—Hurley. Manufactured by Hurley Screen Co.

Sign and Marquee—Fabricated and erected by Flexlume Corp. of Pittsburgh.

Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Alvin Seiler.



THE NEW
Darlton
PAWTUCKET, R. I.
CATALOGING THE NEW IN DESIGN AND EQUIPMENT
3
1941

REFERENCE FACTS:

DARLTON THEATRE

PAWTUCKET, R. I.

Owner: William Pinault
Lessees: Currie and Harmon
Architect: C. Reuben Moberg

Size of Lot: 150 x 198
Seating Capacity: 913

Acoustical Treatment—Damask and felt on rear and sidewalls. Ceiling finished with Stucoustic acoustical plaster. Stucoustic manufactured by California Stucco Products Co.

Air Conditioning—Cooling system to be installed by American Blower Co.

Carpets—Brown, red and black Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Red leatherette seat, mohair back. Manufactured by Heywood-Wakefield Co.

Construction Material—Stucco on 12" cinder blocks; reinforced concrete floors throughout; steel roof joists.

Curtain Controls—A.D.C. Manufactured by Automatic Devices Co.

Decorator—Novelty Scenic Studios.

Display Frames—Aluminated extruded bronze frames manufactured by Continental Bronze Co.

Draperies and Stage Curtains—Blue and gold. Manufactured by Novelty Scenic Studios.

Generator—Robin Imperial. Manufactured by J. E. Robin, Inc.

Lighting Fixtures—Fluorescent. Installed by Novelty Scenic Studios.

Projection Lamps—Brenkert Enarc. Manufactured by Brenkert Light Projection Co.

Projection Machines—Brenkert "80". Manufactured by Brenkert Light Projection Co.

Screen—Dalite. Manufactured by Dalite Screen Co.

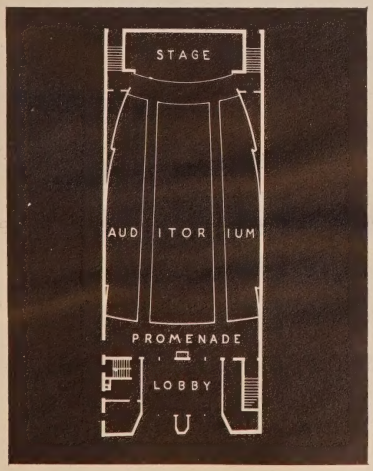
Sign and Marquee—Fabricated and erected by Laushway Adv. Co.

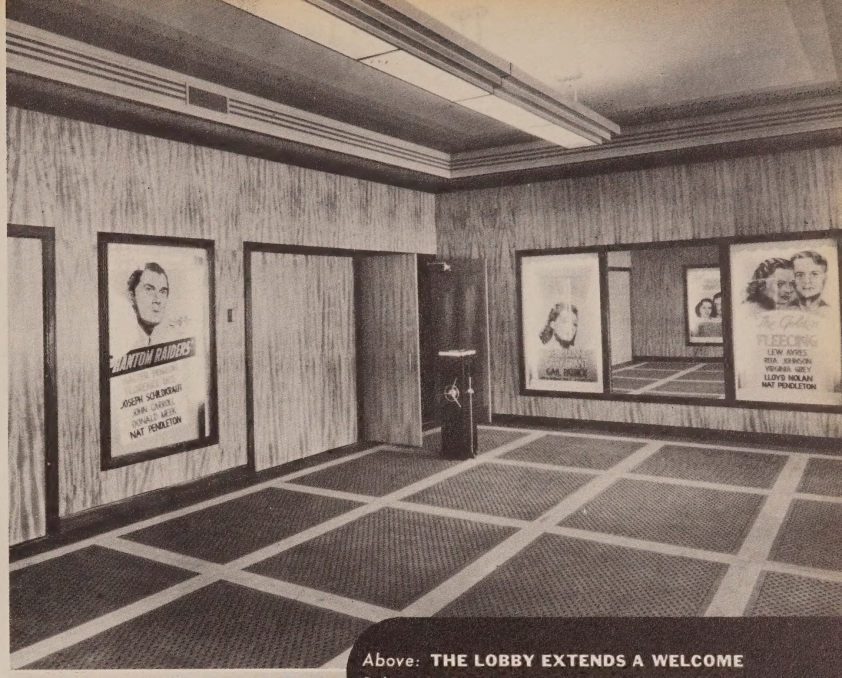
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Capitol Theatre Supply Co.

Ticket Register—Manufactured by General Register Corp.



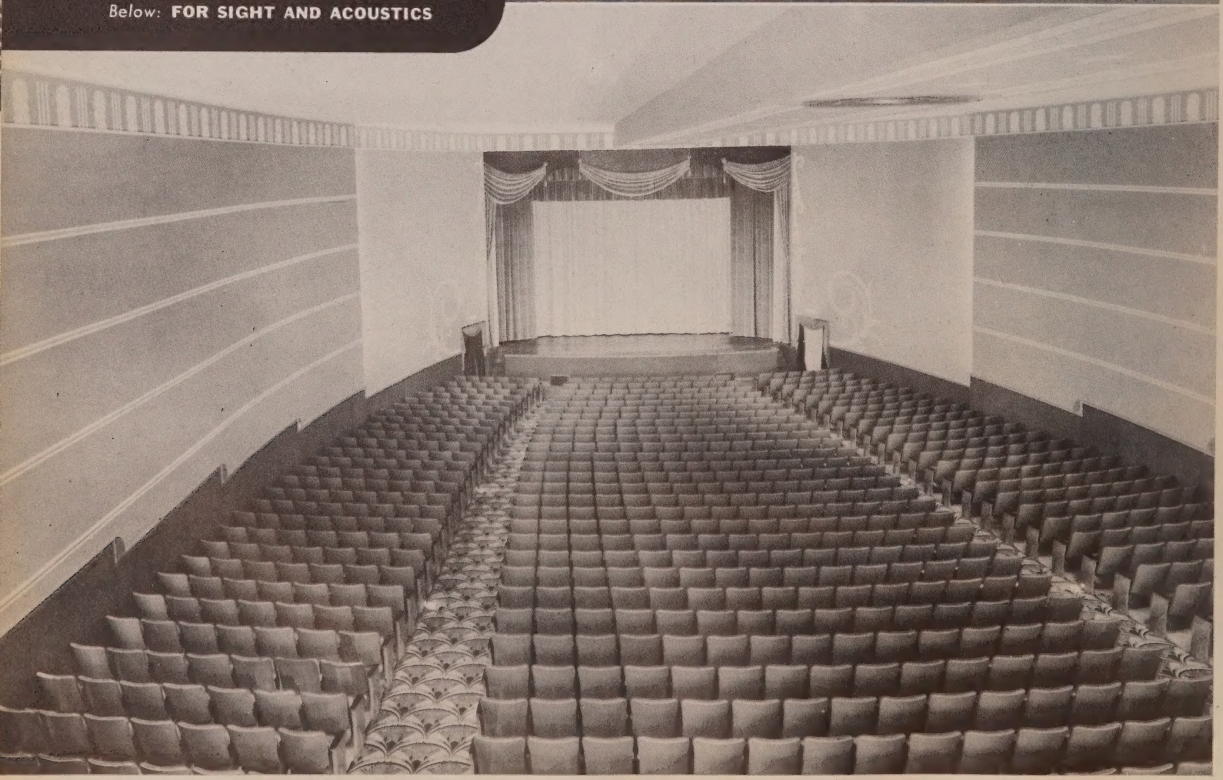


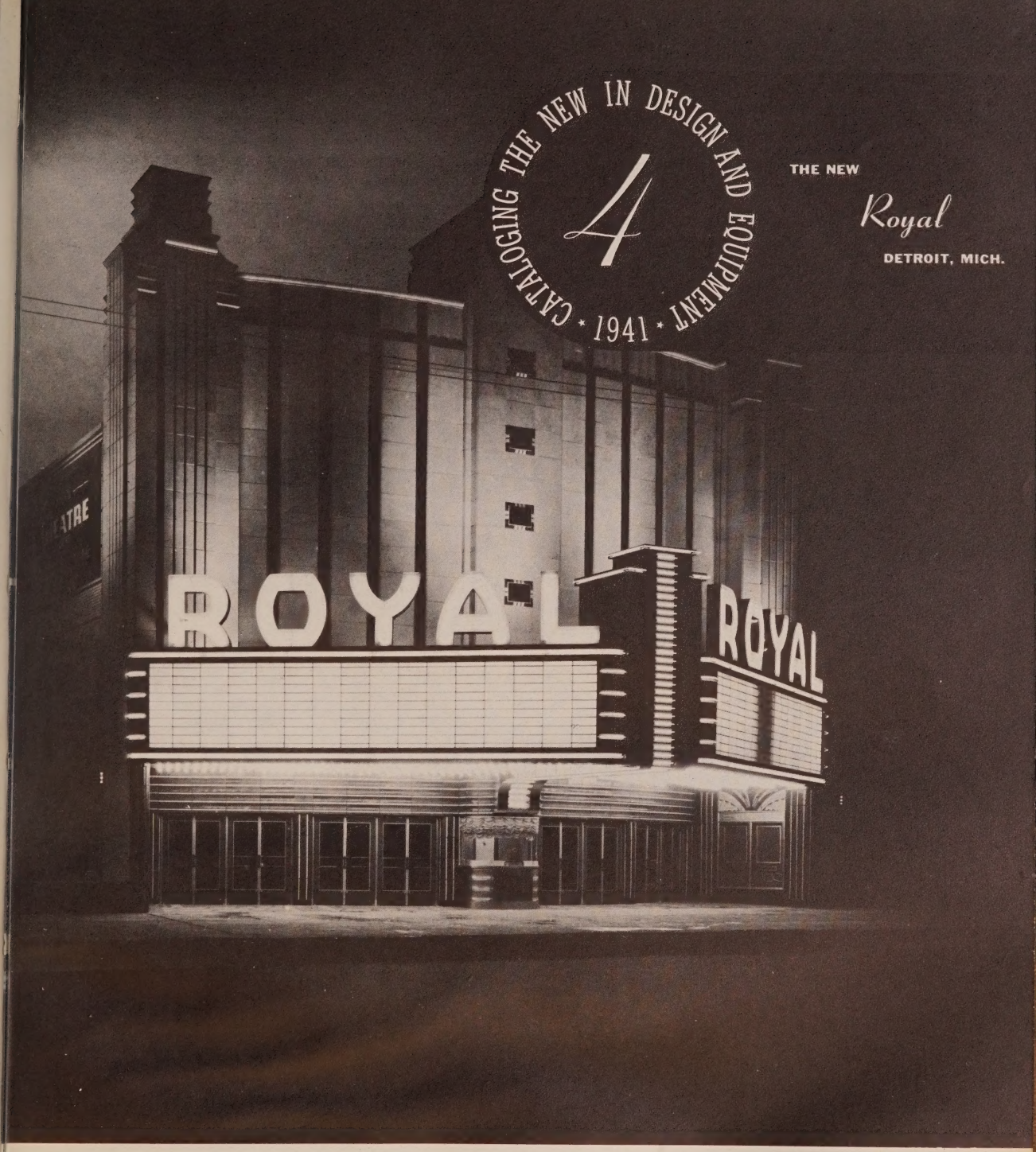
Above: **THE LOBBY EXTENDS A WELCOME**
Below: **DAINTY, FOR FEMININE COMFORT**

Located on state highway Route A-1 in Pawtucket, R. I., (approximately 78,000 inhabitants) this new theatre depends to some extent on attracting the attention of passing motorists. Architect C. Reuben Moberg, Providence, R. I., designed the house for owner William Pinault. Currie and Harmon, prominent exhibitors, are the lessees.

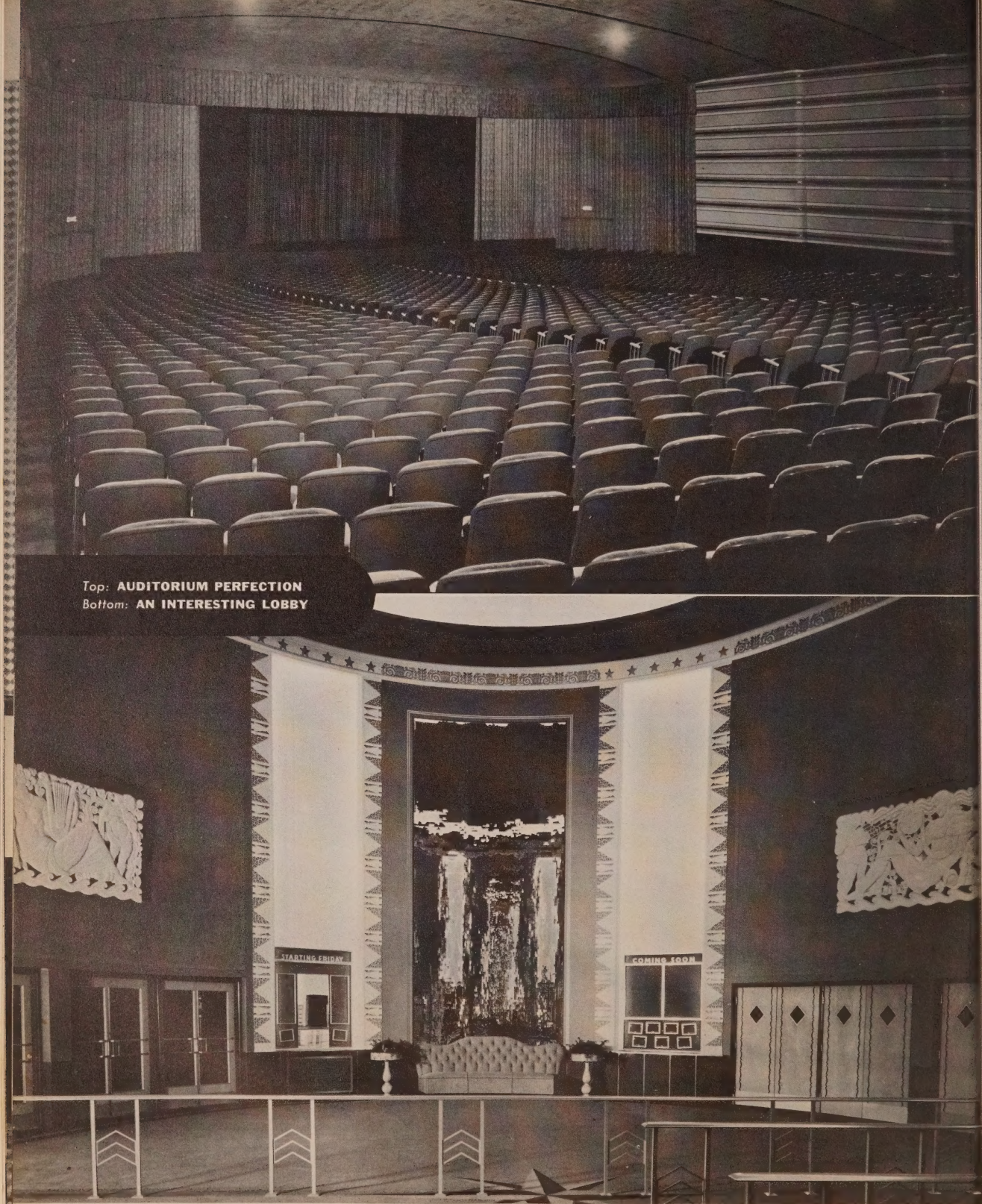
The facing of the front is cream and black terra cotta. The auditorium side walls are covered in two colors of damask. The rear and front are in green and the center is in faded rose with horizontal moulding in gold and yellow.

Above: **A TRIM, SERVICEABLE FRONT**
Below: **FOR SIGHT AND ACOUSTICS**





Most outstanding in Detroit theatrical circles, is this deluxe house with a seating capacity of nearly 2500. Charles N. Agree, prominent Detroit theatre architect, is credited with its design. The building, 150' x 250' is situated on a lot 490' x 370', thereby allowing for a parking lot with a capacity of 800 cars. Theatre is owned by the Royal Theatre Co., and is operated by Wisper & Wetsman and United Detroit Theatres Corp.



Top: **AUDITORIUM PERFECTION**
Bottom: **AN INTERESTING LOBBY**

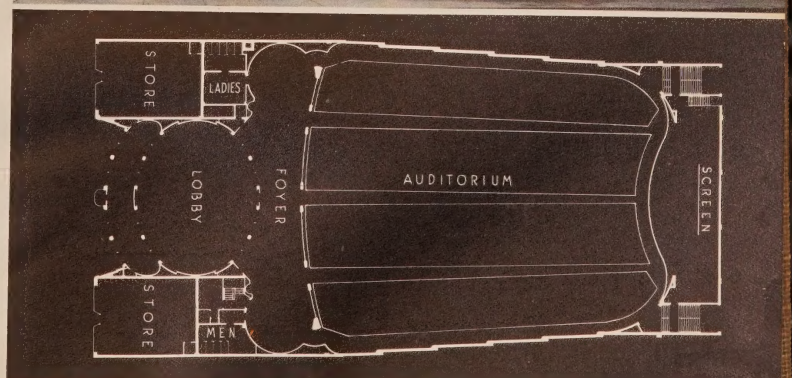
Top: **A SPACIOUS STANDEE ROOM**
Bottom: **MASSIVE FRONT CONSTRUCTION**

REFERENCE FACTS:

ROYAL THEATRE
DETROIT, MICHIGAN

Owner: Wisper & Wetsman
Architect: Charles N. Agree
Size of Lot: 490 x 370
Size of Building: 125 x 250
Seating Capacity: 2496
Cost exclusive of equipment and ground: $249.115.00 (Includes Air Conditioning).

Acoustical Material—Acoustone. Manufactured by U. S. Gypsum Co.
Air Conditioning—Carbondale compressors. Manufactured by Carbondale.
Carpets—Manufactured by Bigelow-Sanford Carpet Co. and Alexander Smith & Sons Co.
Chairs—Manufactured by Heywood-Wakefield Co.
Coin Changer—Manufactured by Universal Stamping & Mfg. Co.
Curtain Tracks—ADC. Manufactured by Automatic Devices Co.
Decorator—Thomas DiLorenzo.
Draperies and Stage Curtains—Manufactured by Novelty Scenic Studios.
Furniture—Manufactured by Davidson Ltd.
Generator—Roth. Manufactured by Century Electric Co.
Lighting Fixtures—Manufactured by Martin-Gibson Light & Tile Corp. Zeon tube lighting installed by Walker & Co.
Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.
Projection Machines—E-7. Manufactured by International Projector Corp.
Rubber Mats—Manufactured by Puritan Rubber Co.
Screen—Walker plastic moulded. Manufactured by Walker American Corp.
Sign and Marquee—Fabricated and erected by Walker & Co.
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.
Sound—Manufactured by Western Electric Co.
Supply Dealer—National Theatre Supply Co.
Ticket Chopper—Numade. Manufactured by Numade Products Co.
Ticket Register—Manufactured by General Register.



THE NEW

Vernon

ALEXANDRIA, VA.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

5

1941

Just outside the limits of Alexandria, Va., in a district that is strictly residential, the Vernon Amusement Corp., chose a 4 acre tract of land for the erection of the theatre building presented here. The drawing area of the house includes about 3,000 people. This population consists of detached home and apartment dwellers. The picture run is subsequent to the six houses in Alexandria. Admission scale is 35 and 20 cents.

REFERENCE FACTS:

VERNON THEATRE

ALEXANDRIA, VA.

Owner: Vernon Amusement Co.

Architect: John J. Zink

Size of Lot: 104 x 200

Seating Capacity: 900

Cost exclusive of equipment and ground: $85,000.

Cost of Equipment: $20,000. (This does not include air conditioning).

Acoustical Material—Damask over Fibreglass. Fibreglass manufactured by U. S. Gypsum Co.

Air Conditioning—York refrigeration system. Manufactured by York Ice Machinery Co.

Candy Machines—Installed by Berlo Vending Co.

Carpets—National Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Manufactured by Heywood-Wakefield Co.

Curtain Controls and Tracks—Vallen. Manufactured by Vallen, Inc.

Decorator—Paramount Decorating Co.

Display Frames—Sealuxe. Manufactured by Universal Building Products Corp.

Draperies and Stage Curtains—Manuactured by Paramount Decorating Co.

Furniture—Manufactured by Royal Metal Mfg. Co.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lenses—Super Cinephor. Manufactured by Bausch & Lomb.

Lighting Fixtures—Manufactured by Baltimore Gaslight Co.

Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.

Projection Machines—Simplex E-7. Manufactured by International Projector Corp.

Screen—Manufactured by Dalite Screen Co.

Sign and Marquee—Fabricated and erected by Phillips Neon Sign Co.

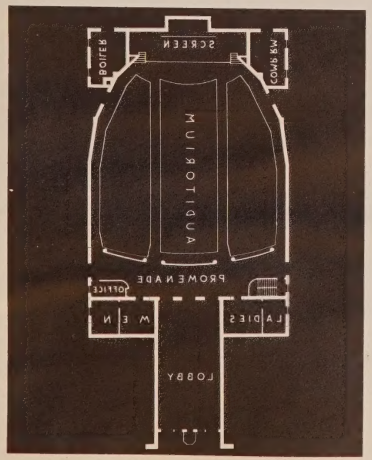
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—National Theatre Supply Co.

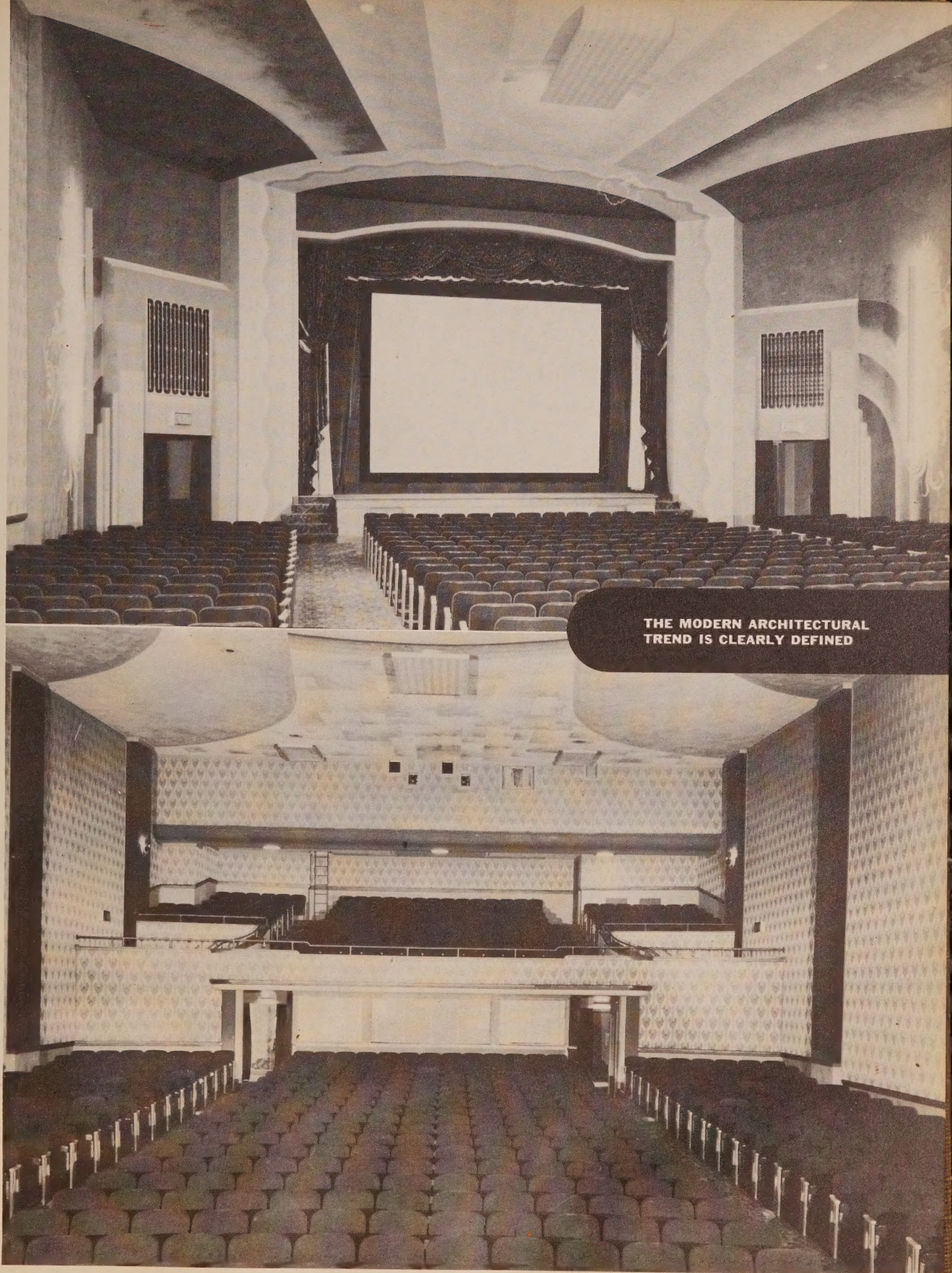
Ticket Register—Manufactured by General Register Corp.

Wall Fabrics—Manufactured by Maharam.

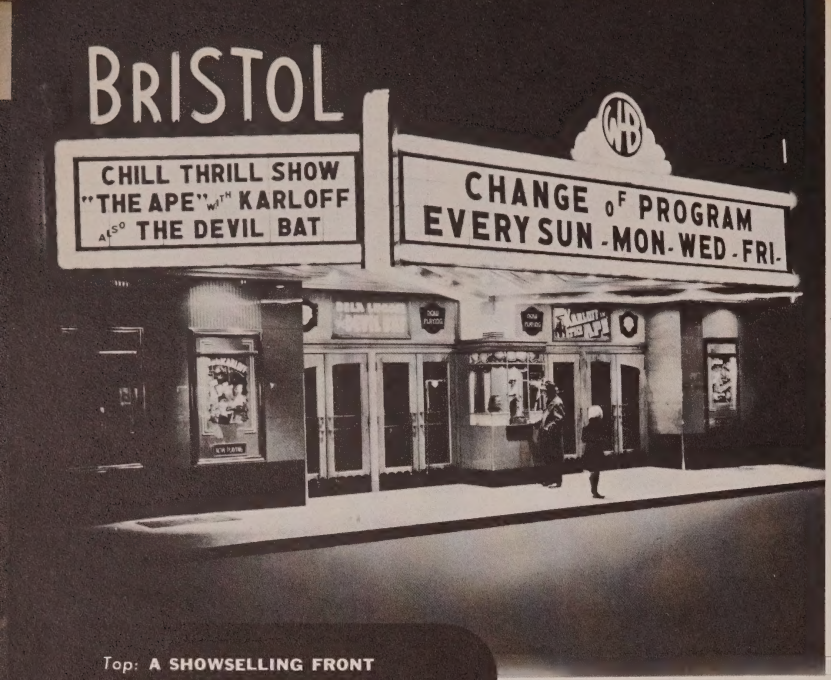


CHEERFUL SIMPLICITY IN THE AUDITORIUM DESIGN

THE NEW
Bristol
BRISTOL, CONN.
CATALOGING THE NEW IN DESIGN AND EQUIPMENT
6
1941
BRISTOL
CHILL THRILL SHOW
"THE APE" KARLOFF
ALSO THE DEVIL BAT
CHANGE OF PROGRAM
EVERY SUN-MON-WED-FRI



THE MODERN ARCHITECTURAL
TREND IS CLEARLY DEFINED



Top: **A SHOWSELLING FRONT**
Bottom: **THE STANDEE ROOM**

In Bristol, Connecticut, a community of 29,000 inhabitants, Warner Brothers constructed the modern cinema shown on these pages. Situated in the town's main business section it is a worth while addition to the Warner holdings in that part of the country. John and Drew Eberson designed the house with Herman Maier supervising construction for Warner Brothers.

REFERENCE FACTS:

BRISTOL THEATRE
BRISTOL, CONN.

Owner: Warner Brothers
Architect: John and Drew Eberson

Size of Lot: 61 x 120
Seating Capacity: 810
Cost of building exclusive of ground: $75,000
Cost of Equipment: $30,000

Acoustical Material—Rockwool over damask. Rockwool manufactured by Geo. R. Hall & Sons Co.

Air Conditioning—No air conditioning. Large ventilating system has been installed.

Candy Machines—Installed by Sanitary Automatic Candy Co.

Carpets—Alexander Smith Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Ideal. Manufactured by Ideal Seating Co.

Coin Changer—Brandt. Manufactured by Brandt Automatic Cashier Co.

Curtain Controls—ADC. Manufactured by Automatic Devices Co.

Decorator—Rambusch Decorating Co.

Display Frames—Built in by general contractor.

Draperies, Stage Curtains and Wall Covering—Charles H. Kenney Studios, Inc. Fabric manufactured by Dazian's, Inc.

Generators—Robin Imperial. Manufactured by J. E. Robin, Inc.

Lighting Fixtures—Manufactured by Rambusch Decorating Co.

Projection Lamps—Ashcraft. Manufactured by J. S. Ashcraft Mfg. Co.

Projection Machines—Super Simplex. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by U. S. Rubber Co.

Screen—Hurley. Manufactured by Hurley Screen Co.

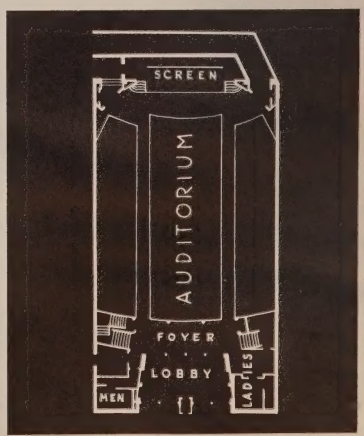
Sign and Marquee—Fabricated and erected by C. I. Brink Co.

Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Continental Theatre Accessories, Inc.

Ticket Register—Manufactured by General Register Corp.



CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 7

THE NEW

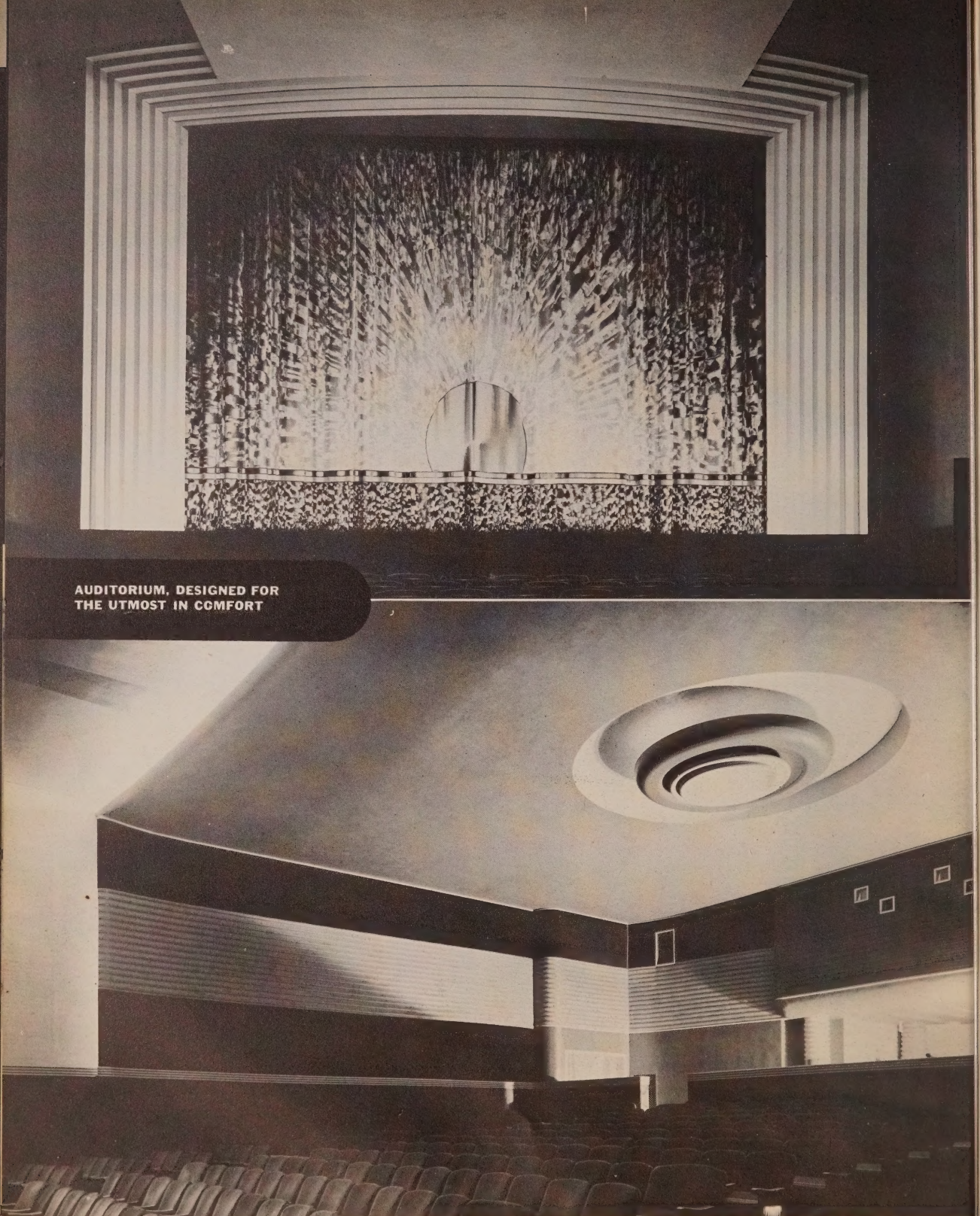
Sunset

CINCINNATTI, OHIO

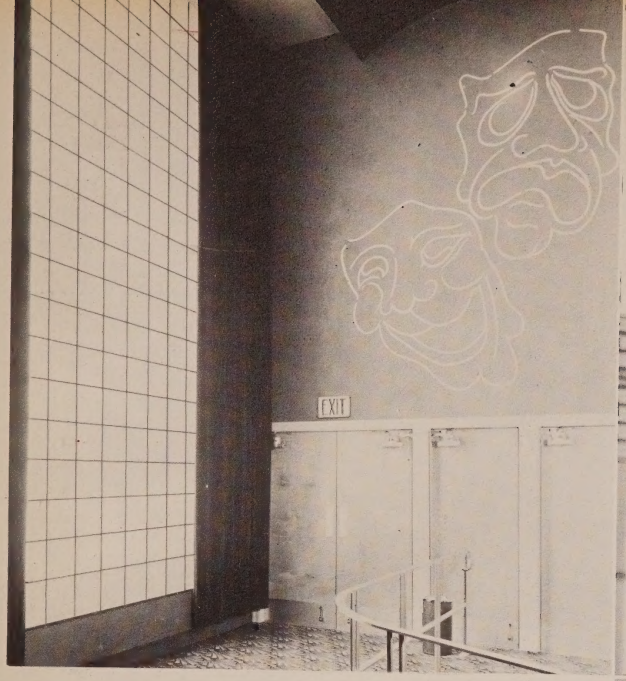
This new house for Ackerman Enterprises of Cincinnati, Ohio, is located in a neighborhood shopping district with the population of the drawing area being approximately 30,000. This population consists mainly of the working class and small businessmen.

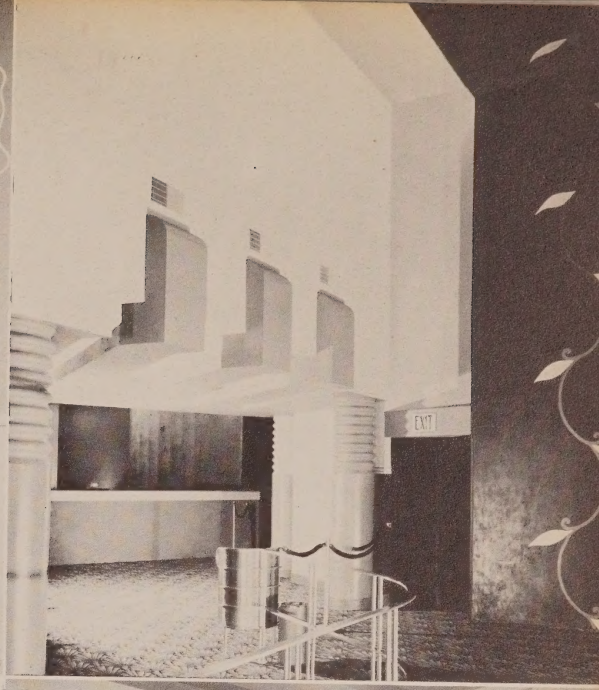
Second run pictures are played at an admission scale of 30 cents and 15 cents. About two-thirds of the playing time is devoted to single features.

F. and Y. Building Service, Theatre Division, designed and constructed this modern Cinema.



AUDITORIUM, DESIGNED FOR
THE UTMOST IN COMFORT





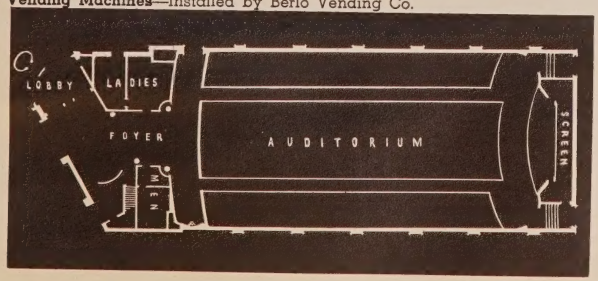
REFERENCE FACTS:

SUNSET THEATRE

CINCINNATI, OHIO

Owner: Ackerman Enterprises, Inc.
Architect: F & Y Building Service
Size of Lot: 146 x 42
Seating Capacity: 825
Cost Exclusive of Equipment and Ground: $70,000
(This Includes Air Conditioning)
Cost of Equipment: $20,000.

Acoustical Treatment—Fabric over Kimsul blanket insulation. Kimsul manufactured by Kimberly-Clark, Inc.
Air Conditioning—Refrigeration system. Compressors manufactured by General Refrigeration Co. Fans manufactured by Garden City Mfg. Co. and Bishop Babcock Co.
Carpets—Manufactured by Mohawk Carpet Mills, Inc.
Chairs—Rubber foam seats and backs. Seats covered with black leatherette, backs covered with light mulberry mohair. **International Seat Corp.**
Coin Changer—Manufactured by Brandt Automatic Cashier Co.
Curtain Controls and Track—Manufactured by Vallen, Inc.
Decorator—F & Y Building Service.
Display Frames—Manufactured by Perfection Picture Frame Co.
Draperies and Stage Curtains—Manufactured by Business Booster Equipment Co.
Furniture—Manufactured by Heywood-Wakefield Co.
Generator—Robin Imperial. Manufactured by J. E. Robin, Inc.
Lighting Fixtures—Manufactured by Ruby Mfg. Co. and Voigt Co.
Projection Lamps—Brenkert Suprex, High Intensity. Manufactured by Brenkert Light Projection Co.
Projection Machines—Brenkert. Manufactured by Brenkert Light Projection Co.
Rubber Mats—Manufactured by Puritan Rubber Co.
Sign and Marquee—Fabricated and erected by The Quehl Sign Co.
Sign Letters—Wagner mutliple frames. Manufactured by Wagner Sign Service, Inc.
Sound—RCA. Manufactured by RCA Mfg. Co.
Supply Dealer—Midwest Theatre Supply Co.
Screen—Dalite. Manufactured by Dalite Screen Co.
Vending Machines—Installed by Berlo Vending Co.



Top: **INTERESTING LOBBY VIEWS**
Center: **SMART APPOINTMENTS FOR THE LADY**
Bottom: **FOR PROJECTION EXCELLENCE**

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

8

1941

THE NEW

Benner

PHILADELPHIA, PA.

Leo Posel, prominent Philadelphia exhibitor, has recently erected this house as an addition to his ever-growing chain of neighborhood theatres. Mr. Posel, a strong believer in giving his patrons the best that money can buy, chose David Supowitz to design this house.

The house has a late run but sticks to a single feature policy at an admission scale of 10 cents and 15 cents for matinee with 15 cents and 25 cents for evening. Located in a new development, in the heart of a new shopping center, its patron draw is mostly office workers and small business men.

REFERENCE FACTS:

THE BENNER THEATRE

PHILADELPHIA, PA.

Owner: Leo Posel

Architect: David Supowitz

Size of Lot: 85 x 134½

Seating Capacity: 700

Acoustical Treatment—Thermax acoustical material. Manufactured by Northwest Magesite Co.

Air Conditioning—Refrigeration system Manufactured by General Electric Co.

Candy Machines—Berlo. Installed by Berlo Vending Co.

Carpets—National Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Irwin. Manufactured by Irwin Seating Co.

Curtain Controls—Vallen. Manufactured by Vallen, Inc.

Decorator—Paramount Decorating Co.

Draperies and Stage Curtains—Manufactured by Paramount Decorating Co.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—Supplied by Phillip Bortman. Manufactured by Voigt Co.

Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.

Projection Machines—Super Simplex. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by O. W. Jackson Co.

Screen—Manufactured by Walker-American.

Sign and Marquee—Fabricated and erected by Apex Sign Co.

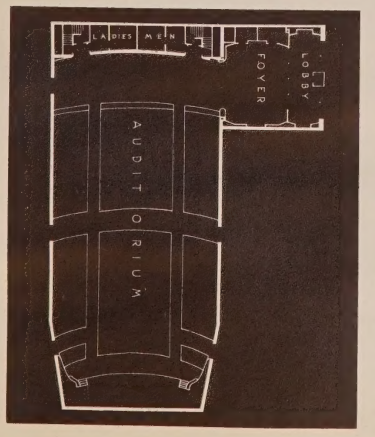
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

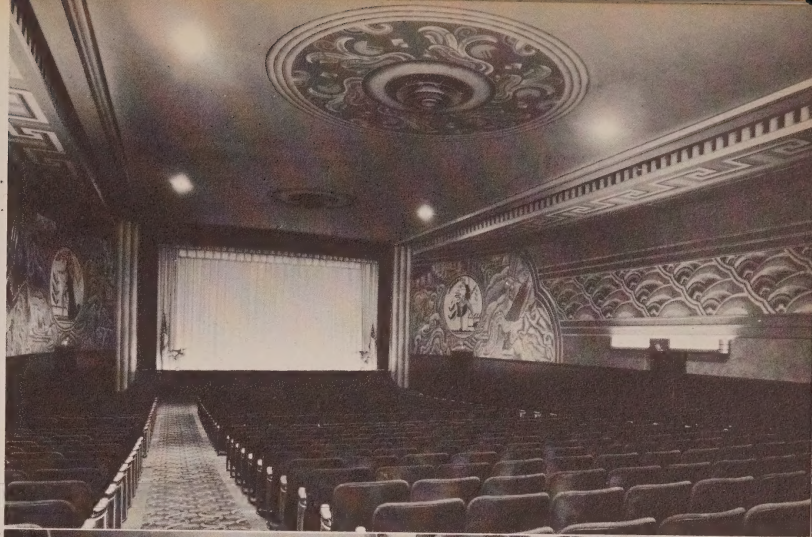
Sound—Simplex 4 Star. Manufactured by International Projector Corp.

Supply Dealer—National Theatre Supply Co.

Ticket Register—Manufactured by General Register Corp.

Wall Fabrics—Manufactured by Maharam.





Top: **A CHEERFUL AUDITORIUM**
Center: **THE AUDITORIUM DECORATIVE SCHEME**
Bottom: **SPACIOUSNESS FOR STANDEES**

THE NEW

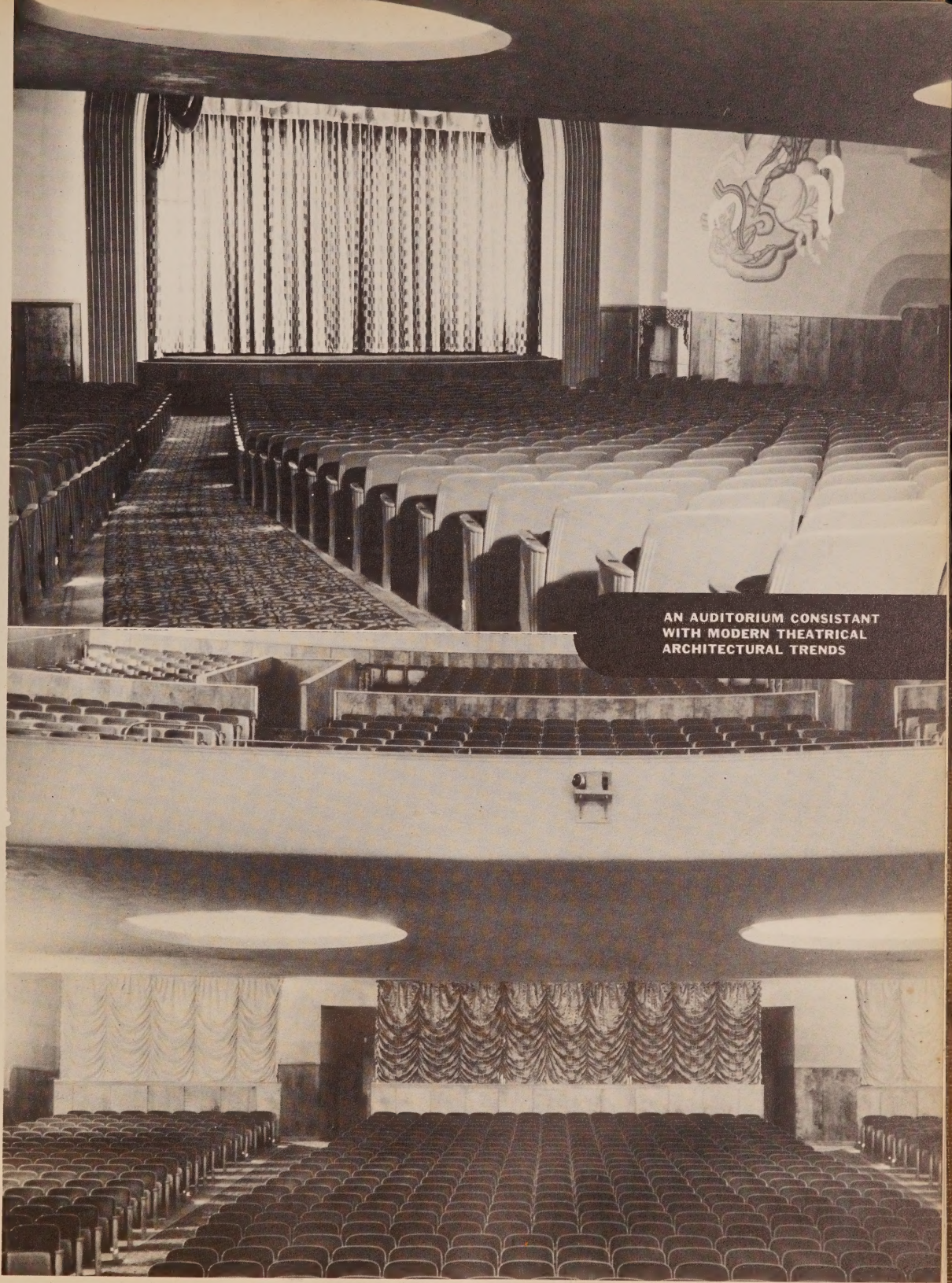
Center

FALL RIVER, MASS.

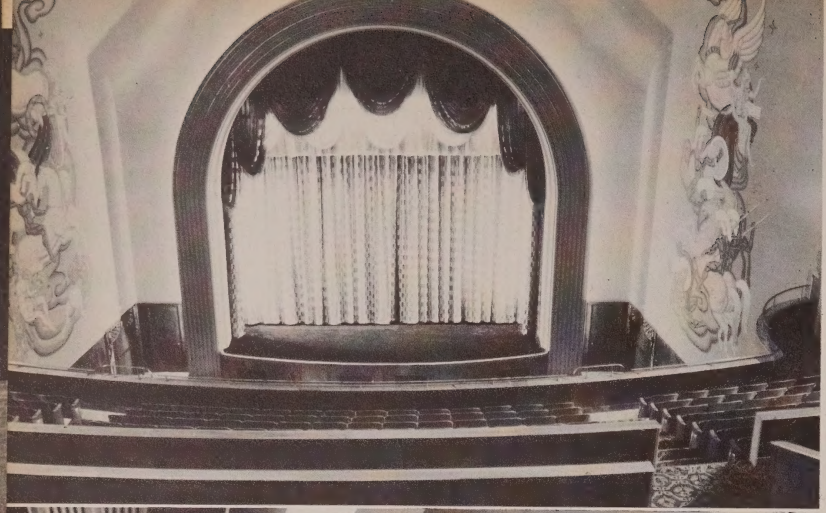
CATALOGING THE NEW IN DESIGN AND EQUIPMENT • 1941 •

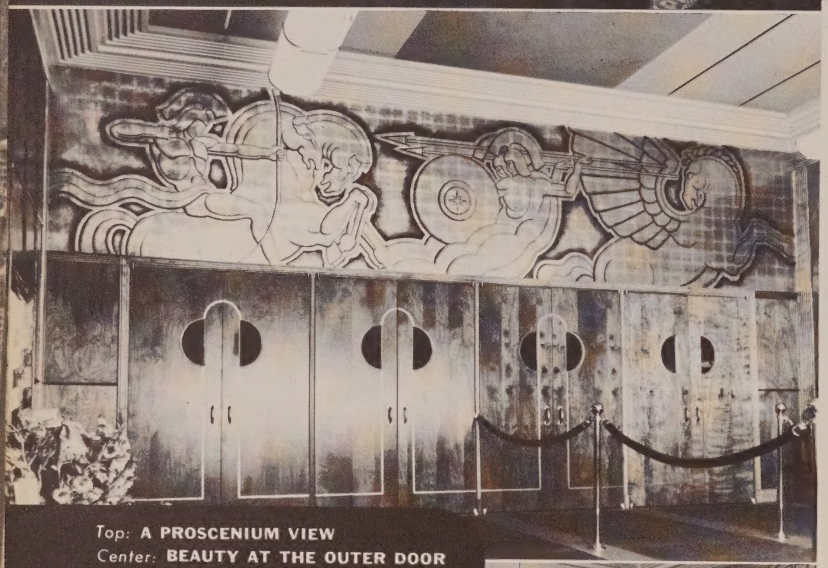
9

Located on the main thoroughfare, and in the principal shopping district of Fall River, Mass., this 1,400 seater caters to better class of the city's 120,000 population. Modern in every detail this deluxe house is worthy of such patronage. House has been leased by the Sidbar Company of Boston and is being operated by Interstate Theatres, David Shapiro, architect of Providence, R. I., was commissioned to design the house.



AN AUDITORIUM CONSISTANT WITH MODERN THEATRICAL ARCHITECTURAL TRENDS





Top: **A PROSCENIUM VIEW**
Center: **BEAUTY AT THE OUTER DOOR**
Bottom: **MODERN LOBBY DESIGN**

REFERENCE FACTS:

CENTER THEATRE
FALL RIVER, MASS.

Operator: Interstate Theatres Corp.
Architect: David Shapiro

Size of Lot: 73 x 154
Seating Capacity: 1390
Cost Without Ground: $150,000

Acoustical Material—No information obtained. Mfd. by Johns-Manville. Corp.

Air Conditioning—Carrier refrigeration system. Manufactured by Carrier Corp.

Carpets—Manufactured by A & M Karagheusian, Inc.

Chairs—American Bodiform. Manufactured by American Seating Co.

Construction Materials—Steel, brick and cement.

Curtain Controls and Track—A.D.C. Manufactured by Automatic Devices Co.

Decorator—Riseman & Lercari.

Display Frames—Manufactured by Continental Bronze Co.

Draperies and Stage Curtains—Manufactured by Joseph Dobesch. Fabric manufactured by Maharam, Inc.

Furniture—Manufactured by Royal Metal Mfg. Co.

Lighting Fixtures—Manufactured by Ruby Mfg. Co. and Lighting Distributors, Inc.

Projection Lamps—Brenkert Enarc. Manufactured by Brenkert Light Projection Co.

Projection Machines—Simplex. Manufactured by International Projector Corp.

Rectifiers—Manufactured by Benwood-Linze Co.

Rubber Mats—Manufactured by American Tile and Rubber Co.

Screen—Dalite. Manufactured by Dalite Screen Co.

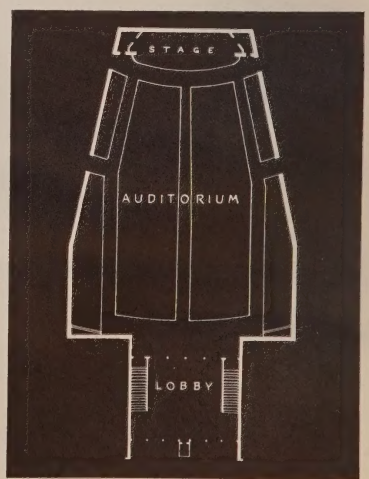
Sign and Marquee—Fabricated and erected by Donnelly Sign Co.

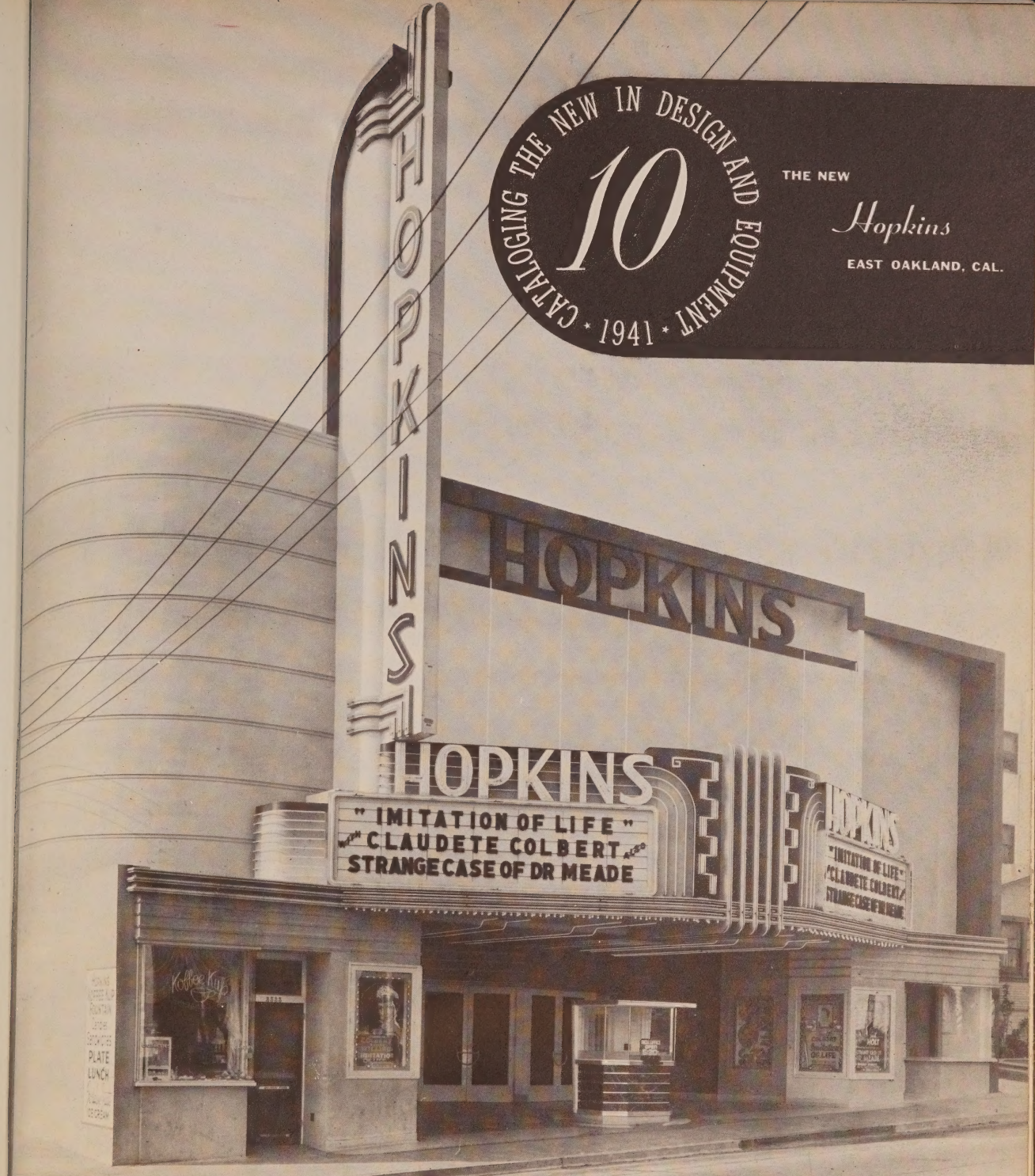
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—Manufactured by Western Electric Co.

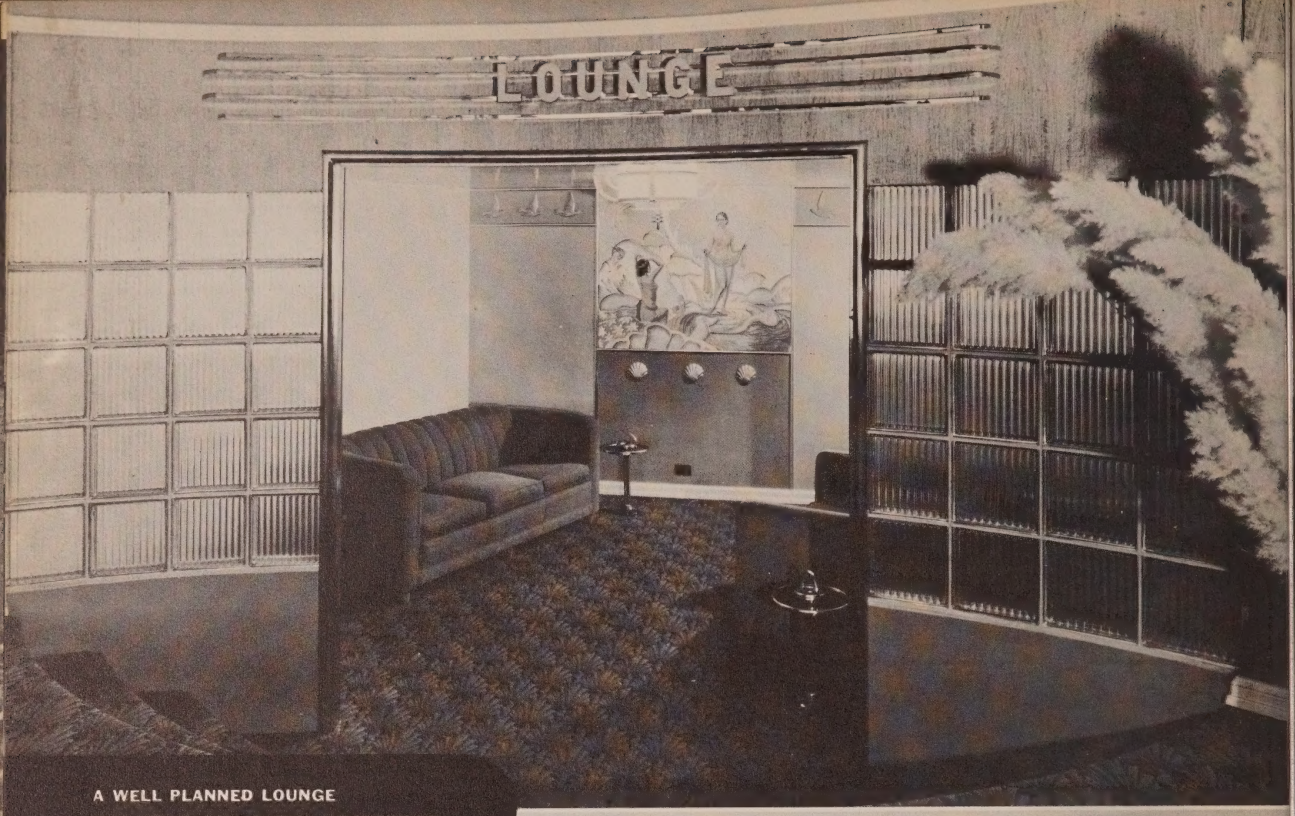
Supply Dealer—Capitol Theatre Supply Co.

Ticket Register—Manufactured by General Register Corp.

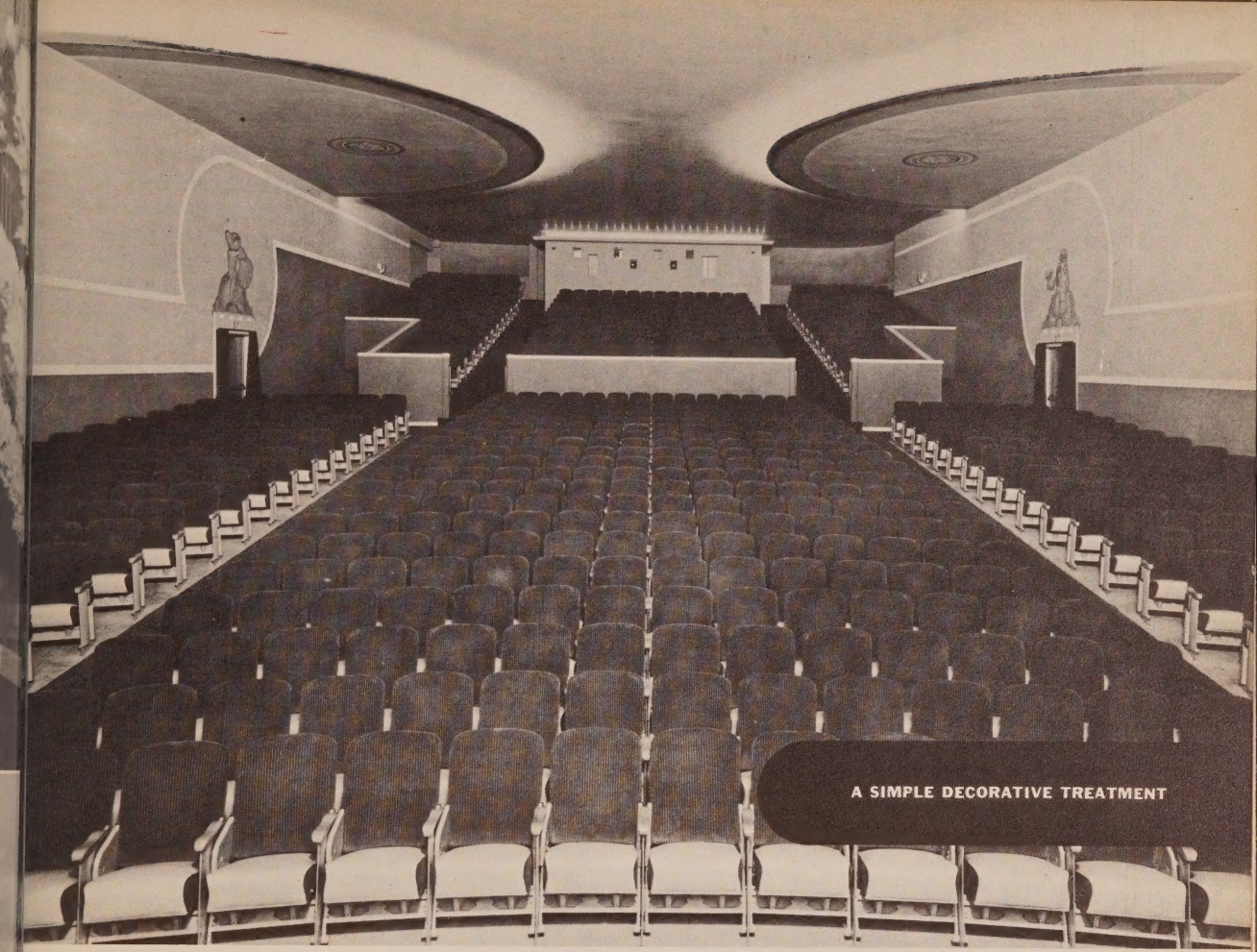




East Oakland, a suburb of Oakland, California, was chosen by L. H. Goldsmith as the site for the erection of the modern de-luxe cinema pictured on these pages. As designer of the house, Goldsmith called in well-known architect S. Charles Lee. The theatre draws approximately eight thousand inhabitants, with the middle class predominating. Programs change twice weekly and the admissions range from ten cents for children to thirty-five cents for adults.



A WELL PLANNED LOUNGE
THE FOYER IS MODERN, UNCROWDED



A SIMPLE DECORATIVE TREATMENT

REFERENCE FACTS:

HOPKINS THEATRE

OAKLAND, CAL.

Owner: L. H. Goldsmith

Architect: S. Charles Lee

Size of Lot: 90 x 150

Seating Capacity: 914

Acoustical Treatment—Acoustite manufactured by Coast Insulating Co.

Air Conditioning—Installed by Alladine Heating and Ventilating Co.

Carpets—Manufactured by Mohawk Carpet Mills, Inc.

Chairs—Kroehler Push Back. Manufactured by Kroehler Mfg. Co.

Coin Changer—Brandt Automatic. Manufactured by Brandt Automatic Cashier Co.

Curtain Control and Track—Manufactured by Weaver Mfg. Co.

Decorator—Heinsberger Decorating Co.

Display Frames—Manufactured by National Screen Service.

Draperies and Stage Curtains—Supplied by B. F. Shearer Co.

Furniture—Manufactured by Kroehler Mfg. Co.

Lighting Fixtures—Manufactured by Boyd Lighting Co.

Projection Lamps—Brenkert Enarc. Manufactured by Brenkert Light Projection Co.

Projection Machines—Motiograph Model K Deluxe. Manufactured by Motiograph, Inc.

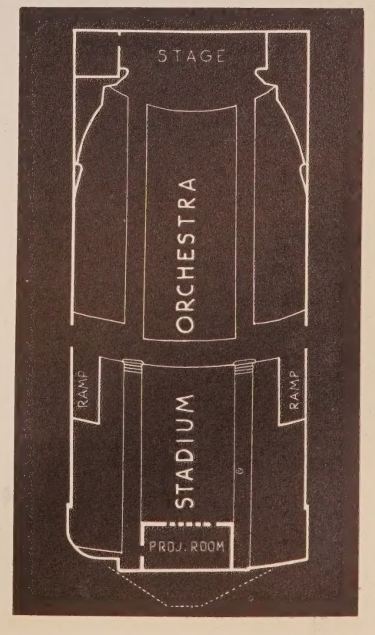
Screen—Datone. Manufactured by Dalite Screen Co.

Sign and Marquee—Fabricated and erected by Electrical Products Corp.

Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—B. F. Shearer Co.



THE NEW

Today

CHICAGO, ILL.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

11

· 1941 ·

Believed by many to be "the finest small theatre in the world," the newsreel house pictured here is located at Dearborn and Madison, in the heart of the Chicago business district. The house is the original conception of David Chapman, well-known industrial designer, who was engaged by Richard Beck, owner, to create as fine a small theatre as was possible. The house's policy consists of continuous one hour shows of newsreels and short subjects, with a twenty-eight cent admission charge.

REFERENCE FACTS:

TODAY THEATRE

CHICAGO, ILL.

Owner: Richard E. Beck

Designer: David Chapman

Architect: Loewenberg and Loewenberg

Size of Lot: 30 x 168

Seating Capacity: 327

Cost of Theatre Exclusive of Equipment: $80,000

Cost of Equipment including Air Conditioning: $40,000

Acoustical Material—Spray-o-flake. Manufactured by Insulating Engineering Works.

Air Conditioning—Refrigeration system. Manufactured by Westinghouse Mfg. Co.

Carpets—Klear-flax.

Chairs—Push back. Manufactured by Kroehler Mfg. Co.

Coin Changer—Johnson Lightning Cashier. Manufactured by Johnson Fare Box Co.

Decorator—Bobbe & Co.

Display Frames—Manufactured by Illinois Bronze Co.

Furniture—Manufactured by Richard Pick.

Hand Driers—Manufactured by Chicago Hardware Foundry Co.

Lighting Fixtures—Manufactured by Belson Mfg. Co.

Murals—By John Pratt and Patricia O'Brien.

Projection Lamps—Manufactured by Brenkert Light Projection Co.

Projection Machines—Manufactured by Brenkert Light Projection Co.

Rectifiers—Manufactured by Westinghouse Mfg. Co.

Screen—Manufactured by RCA Mfg. Co.

Sign and Marquee—Fabricated and erected by White Way Electric Sign and Maintenance Co.

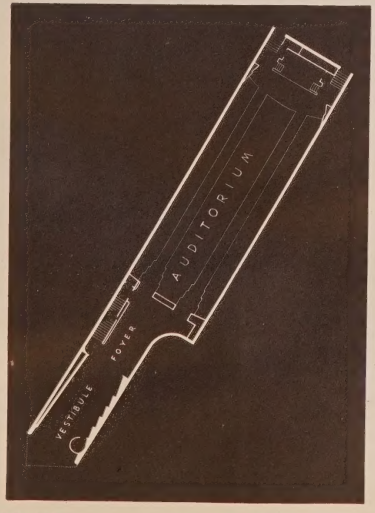
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

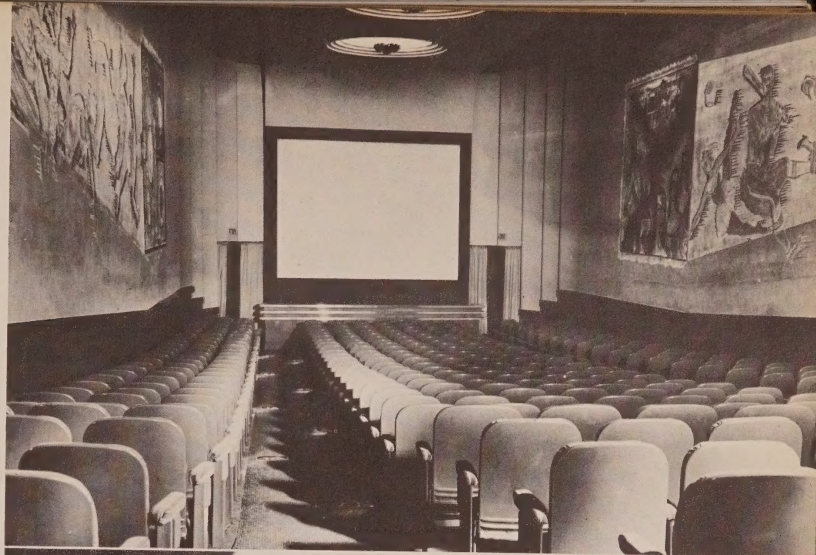
Sound—RCA. Manufactured by RCA Mfg. Co.

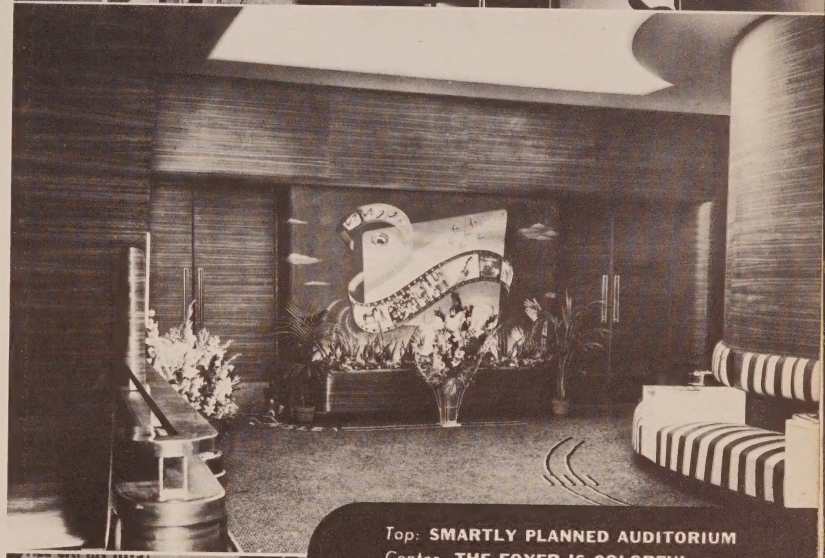
Supply Dealer—Joe Goldberg, Inc.

Sterile Toilet Seats—Manufactured by Sterile Seat Corp.

Ticket Register—Manufactured by General Register Corp.





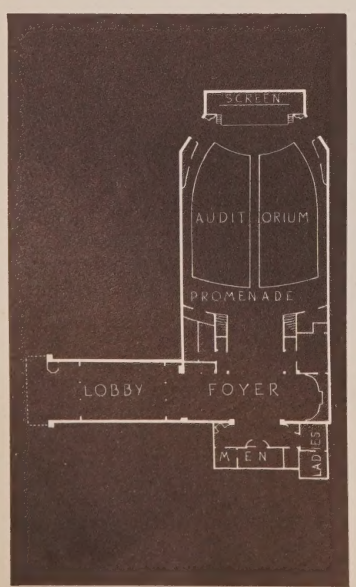


Top: **SMARTLY PLANNED AUDITORIUM**
Center: **THE FOYER IS COLORFUL**
Bottom: **FOYER PHOTO MONTAGUE**

The small de-luxe house pictured on these pages is located in a neighborhood shopping center in Flushing, Long Island. It has a drawing area of approximately 10,000 — the great majority of whom are owners of single homes. Admission for adults is fifteen cents for matinees and thirty-five cents for the evening shows, while children's admission remains constant at ten cents. The house was built for the Utopia Amusement Corporation.

AN INTERESTING AUDITORIUM VIEW

PROSCENIUM DECORATIVE SCHEME



REFERENCE FACTS:

MAYFAIR THEATRE

FLUSHING, L. I.

Owner: Puritan Land Corp.

Operator: Utopia Amusement Co.

Architect: Charles A. Sandblom

Seating Capacity: 600

Cost of Theatre Building Exclusive of Equipment: $100.000.

Cost of Equipment Including Air Conditioning: $20.000.

Acoustical Material—Acoustical ~~plaster~~ rockwool. Manufactured by Geo. R. Hall & Sons.

Air Conditioning—Installed by Armo Air Cooling and Ventilating Co.

Carpets—Manufactured by Greater New York Carpet Co.

Chairs—Manufactured by Heywood-Wakefield Co.

Curtain Controls—A.D.C. Manufactured by Automatic Devices Co.

Decorator—Novelty Scenic Studios, Inc.

Display Frames—Manufactured by Stanley Frame Co.

Furniture—Manufactured by Biltmore Furniture Co.

Lighting Fixtures—Manufactured by Charles J. Winston Co.

Projection Lamps—Strong Mogul. Manufactured by Strong Electric Corp.

Projection Machines—Simplex. Manufactured by International Projector Corp.

Rewinders—Manufactured by Goldberg Bros.

Rubber Mats—Manufactured by O. W. Jackson Co.

Screen—Raytone. Manufactured by Rayton Screen Co.

Sign and Marquee—Fabricated and erected by Artkraft Strauss Sign Corp.

Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Amusement Supply Co., Inc.

Ticket Register—Manufactured by General Register Corp.

Vacuum Cleaner—Super Super, Jr. Manufactured by National Super Service Co.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT
13
1941
THE NEW
Dearborn
DEARBORN, MICH.
DEARBORN
OPEN FRIDAY
"TOBACCO ROAD"
PRISCILLA LANE
"FOUR MOTHERS"
JEFFREY LYNN

Top: **THE ORNAMENTAL CENTER OF INTEREST**

Bottom: **SPACIOUS AND SIMPLE**

Although the new Dearborn Theatre, in Dearborn, Michigan, is situated in an exclusive residential district, its patron draw, which numbers about 30,000, is not limited to this area. For that reason, the patronage is mixed, and the house has been designed to have wide appeal. The admission price for adults is 35 cents—for children, 15 cents.

REFERENCE FACTS:

DEARBORN THEATRE
DEARBORN, MICHIGAN

Owner: Wisper & Wetsman
Architect: Charles N. Agree
Size of Lot: 400 x 500
Seating Capacity: 1498
Cost Including Equipment: $212,000

Acoustical Treatment—Acoustone. Manufactured by U. S. Gypsum Co.

Air Conditioning—Refrigeration system. Compressors manufactured by Atmosphere Control Co.

Carpets—Lokweave manufactured by Bigelow-Sanford Carpet Co. and Crestwood manufactured by Alexander Smith & Sons Co.

Chairs—American Bodiform. Manufactured by American Seating Co.

Coin Changer—Manufactured by Brandt Automatic Cashier Co.

Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.

Decorator—Thomas DiLorenzo.

Display Frames—Aluminum frames manufactured by L & T Metal Arts Co.

Draperies and Stage Curtains—Manufactured by Mork-Green Studios, Inc.

Furniture—Manufactured by Davidson, Ltd.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—Concealed zeon tubing. Manufactured by American Electrical Display Co.

Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.

Projection Machines—Simplex E-7. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by U. S. Rubber Co.

Screen—Plastic moulded. Manufactured by Walker American Corp.

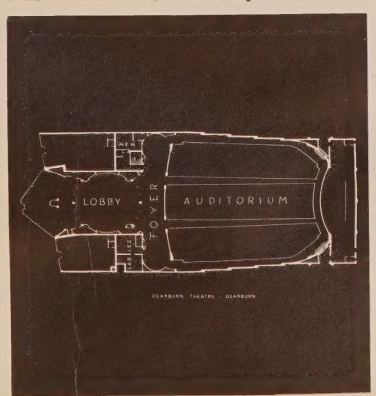
Sign and Marquee—Fabricated and erected by Electrical Display Co.

Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—Simplex. Manufactured by International Projector Corp.

Supply Dealer—National Theatre Supply Co.

Wall Fabrics—Manufactured by Mahdram.



Top: **TO HANDLE PATRONS EFFICIENTLY**
Bottom: **SPECTACULAR ILLUMINATION**

THE NEW

Mayfair

VENTURA, CAL.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

14

• 1941 •

Located just on the edge of the main business section of the town, this smart show-place is ideally situated to attract all types of patrons. It is accessible to the shopping trade and, at the same time, not in the heavy parking zone. Architect S. Charles Lee designed the house for Mrs. Jeanne Dodge, owner and operator of the theatre.

REFERENCE FACTS:

MAYFAIR THEATRE

VENTURA, CALIFORNIA

Owner: Jeanne Dodge

Architect: S. Charles Lee

Size of Lot: 110 x 170

Seating Capacity: 850

Cost of Building Exclusive of Equipment: $44,900

Acoustical Treatment—Acoustite manufactured by Coast Insulating Co.

Air Conditioning—Fans and air washers only.

Carpets—Gulistan. Manufactured by A & M Karagheusian.

Chairs—Manufactured by Heywood-Wakefield Co.

Coin Changer—Coin-O-Meter. Manufactured by Universal Stamping & Mfg. Co.

Curtain Controls and Track—Manufactured by Weaver Mfg. Co.

Draperies and Stage Curtains—Supplied by B. F. Shearer Co.

Decorator—Heinsberger Decorating Co.

Furniture—Supplied by B. F. Shearer Co.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—Manufactured by Solar Lighting Fixture Co.

Projection Lamps—Peerless. Manufactured by J. E. McAuley Mfg. Co.

Projection Machines—Super Simplex. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by Los Angeles Rubber and Asbestos Works.

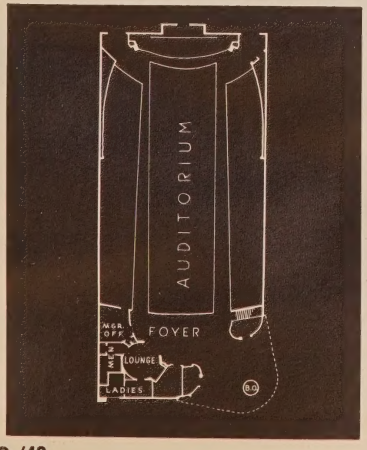
Screen—Walker super white seamless. Manufactured by Walker American Corp.

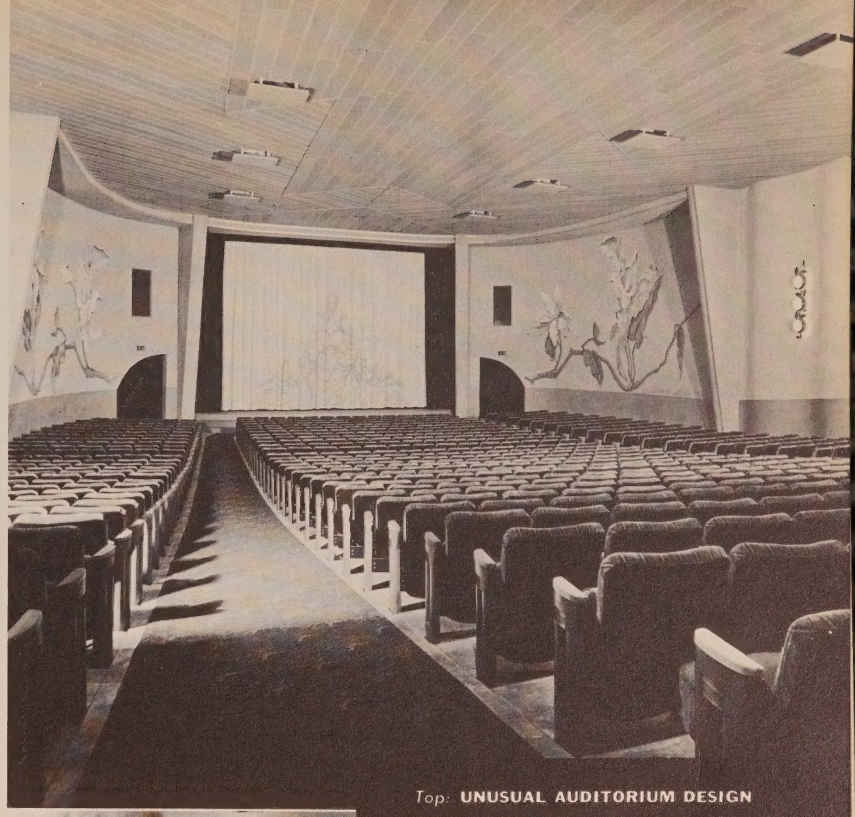
Sign and Marquee—Fabricated and erected by Tru-Ad Neon Co.

Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—Simplex 4 Star. Manufactured by International Projector Corp.

Supply Dealer—National Theatre Supply Co. and B. F. Shearer Co.





Top: **UNUSUAL AUDITORIUM DESIGN**
Bottom: **FOR LOUNGING COMFORT**

THE NEW

Star

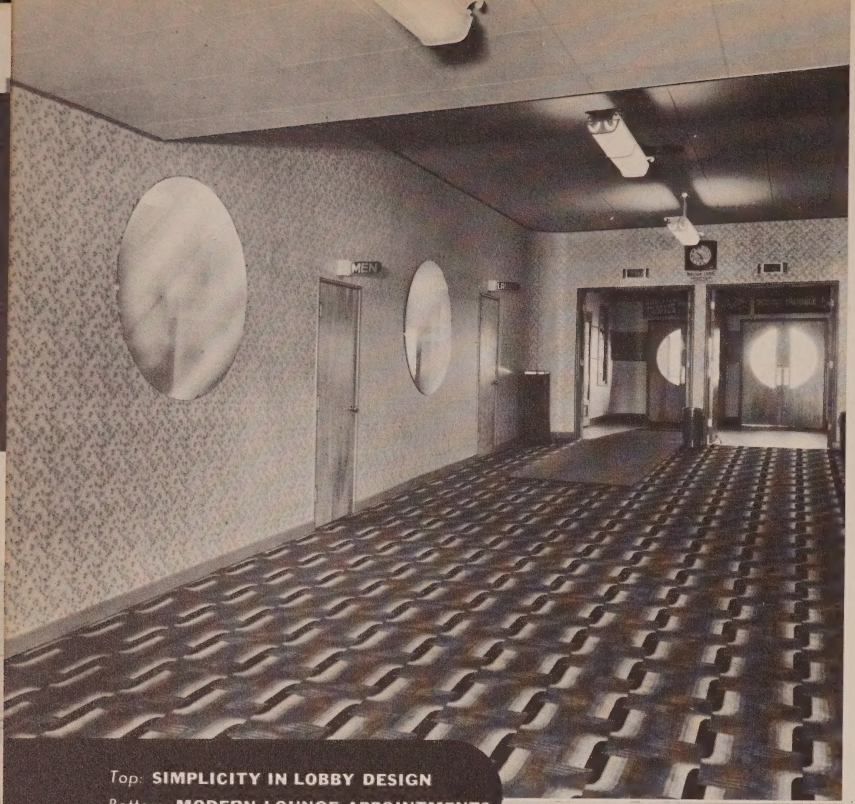
TONAWANDA, N. Y.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 15

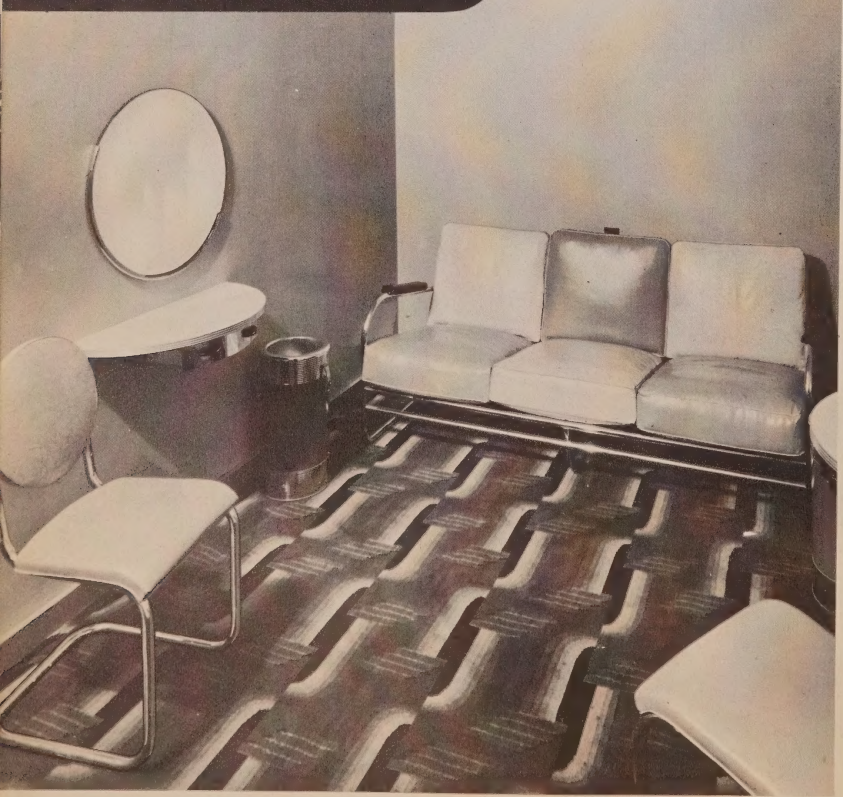
This modern showhouse was recently erected by the Dipson Theatre Corporation in Tonawanda, New York. Located in the main business district of this Buffalo suburb, the house plays second-run features following the Dipson first-run in the town. The admission top is 28 cents, and the theatre is smartly modern at low initial cost.

Top: **BEAUTY AT THE PROSCENIUM**

Bottom: **COMFORT DOMINATES THE BALANCE**



Top: **SIMPLICITY IN LOBBY DESIGN**
Bottom: **MODERN LOUNGE APPOINTMENTS**



REFERENCE FACTS:

STAR THEATRE

TONAWANDA, N. Y.

Owner: Dipson Theatre Corp.
Architect: Michael J. DeAngelis
Size of Lot: 70 x 140
Seating Capacity: 980
Cost Exclusive of Equipment: $40,000
This Figure Includes Air Conditioning

Acoustical Treatment—Temlock. Manufactured by Armstrong Cork Co.

Air Conditioning—Refrigeration system. Manufactured by Carrier Corp.

Carpets—Mohawk. Manufactured by Mohawk Carpet Mills, Inc.

Chairs—Manufactured by American Seating Co.

Curtain Controls and Track—A.D.C. Manufactured by Automatic Devices Co.

Decorator—Novelty Scenic Studios, Inc.

Draperies and Stage Curtains—Manufactured by Novelty Scenic Studios, Inc.

Furniture—Royal chrome. Manufactured by Royal Metal Mfg. Co.

Lighting Fixtures—Manufactured by Lighting Distributors, Inc.

Projection Lamps—Manufactured by Ashcraft Mfg. Co.

Projection Machines—Motiograph. Manufactured by Motiograph, Inc.

Rectifiers—Rect-O-Lite. Manufactured by Baldor Electric Co.

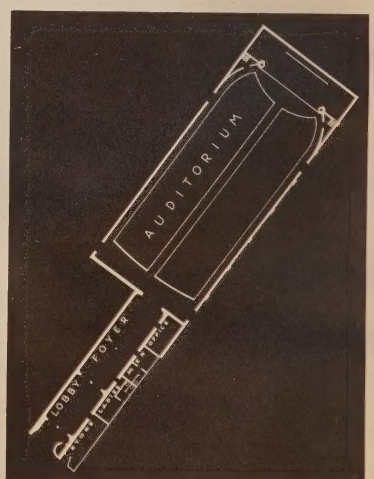
Screen—Manufactured by Walker American Corp.

Sign and Marquee—Fabricated and erected by Flexlume Sign Co.

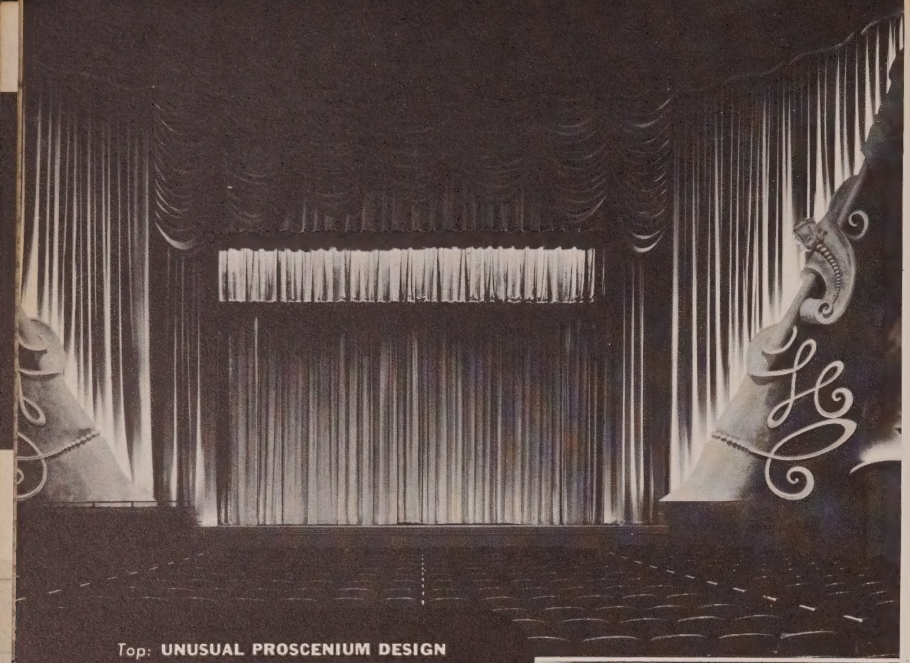
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Becker Theatre Supply Co.



IT'S THE VEXIEST PICTURE OF THE YEAR!
BARBARA STANWYCK HENRY FONDA
PRESTON STURGES "THE LADY EVE"
CHAS COBURN-ERIC BLORE-GENE PALLETTE
FIRST
1100 to Largest Seat Class
BRONZE PLAQUE
WINNER
1941
THE NEW
Beach
MIAMI BEACH, FLA.



Top: **UNUSUAL PROSCENIUM DESIGN**
Bottom: **A TROPICAL ATMOSPHERE**

Top: **POWDER ROOM**
Center: **DISPLAY CASES**
Bottom: **AQUARIUM AND FOUNTAIN**

The house presented here is one of the most distinctive and interesting contributions to theatre architecture during the past year. Located in an office building in the main section of Miami Beach, its policy is first-run pictures, with stage shows presented during the winter vacation season. The theatre is truly the last word in showmanship. A very obvious effort has been made to make it "different" and atmospheric, from the front, with its unique marquee, through the spacious lobby, with its giant tropical plants, and the luxurious lounge rooms, to the smartly-designed auditorium with its tropical motif. A highlight of the design is the drinking fountain pictured here, backed by an illuminated aquarium containing tropical fish. Attention should also be called to the display cases in the lobby, which have been slanted so as to immediately attract the attention of patrons entering the theatre.

REFERENCE FACTS:

BEACH THEATRE

MIAMI BEACH, FLA.

Owner: Moses Ginsberg

Architect: Robert Law Weed
W. L. Pereira, consultant

Size of Lot: Located in Office Building

Seating Capacity: 1604

Cost of Theatre Exclusive of Equipment: $250,000. Fig. includes air conditioning.

Cost of Equipment: $70,000.

Acoustical Treatment—Acoustone D acoustical plaster. Manufactured by U. S. Gypsum Co.

Air Conditioning—Refrigeration system. Manufactured by Carrier Corp.

Carpets—Alexander Smith Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Manufactured by Heywood Wakefield Co.

Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.

Decoration—Supervised by the architect.

Furniture—Manufactured by Davidson Ltd.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—Manufactured by Voigt Co.

Projection Lamps—Brenkert. Manufactured by Brenkert Light Projection Co.

Projection Machines—Super Simplex. Manufactured by International Projector Corp.

Screen—Manufactured by Rayton Screen Co.

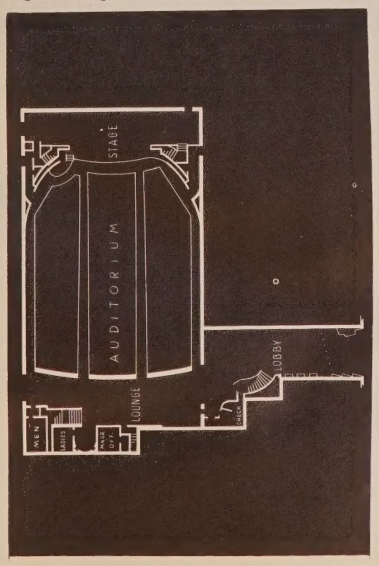
Sign and Marquee—Fabricated and erected by Allied Bronze Co.

Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

Sound—Simplex 4-Star. Manufactured by International Projector Corp.

Supply Dealer—National Theatre Supply Co.

Ticket Register—Manufactured by General Register Corp.



Top: **AN INVITATION TO REST**
Center: **MIRRORED REFLECTION**
Bottom: **TROPICAL SPLENDOR**

CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 17

THE NEW

Park

NORTH LITTLE ROCK, ARK.

Catering to a middle and upper-class patronage from a possible draw of 5,000, the theatre pictured on these pages is located in the Park Hill Community Center, North Little Rock, Arkansas. The Malco Realty Corporation erected the modern house for operation by Malco Theatres, Inc. The house has a second-run policy, with an admission price of 10 cents for children and 20 cents for adults.

REFERENCE FACTS:

PARK THEATRE

NORTH LITTLE ROCK, ARK.

Owner: Malco Realty Corp.

Architect: Bruggeman, Swain & Allen

Size of Lot: 250 x 300

Seating Capacity: 650

Cost of Theatre Exclusive of Equipment: $60,000

Cost of Equipment Including Air Conditioning: $15,000

Acoustical Treatment—Celotex tile. Manufactured by Celotex Corp.

Air Conditioning—Washed air system using National fans and blowers.

Carpets—Alexander Smith Fluorescent. Manufactured by Alexander Smith & Sons Co.

Chairs—Manufactured by Irwin Seating Co.

Construction Material—Brick, structural steel, concrete, and Vitrolite structural glass. Vitrolite manufactured by Libbey-Owens-Ford Glass Co.

Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.

Coin Changer—Brandt. Manufactured by Brandt Automatic Cashier Co.

Decorator—John Oehrlie & Sons.

Display Frames—Stainless steel. Manufactured by Universal Building Products Corp.

Fluorescent Lighting—Manufactured by Conti-Glo Division Continental Lithograph Corp.

Furniture—Royal Chrome. Manufactured by Royal Metal Mfg. Co.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—Manufactured by Gill Glass Fixture Co. and Edwin F. Guth Co.

Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.

Projection Machines—Simplex E-7. Manufactured by International Projector Corp.

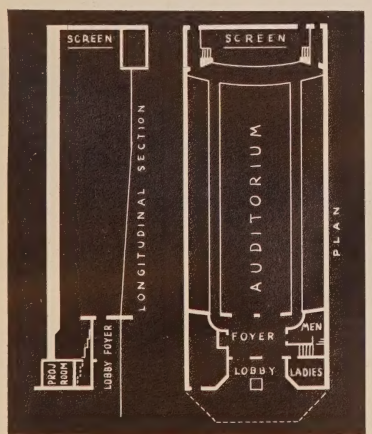
Screen—Walker Plastic Molded. Manufactured by Walker-American Corp.

Sign and Marquee—Fabricated and erected by Arkansas Sign and Neon Co.

Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—Simplex 4-Star. Manufactured by International Projector Corp.

Supply Dealer—National Theatre Supply Co.



SIMPLICITY IN AUDITORIUM DESIGN RETARDS DISTRACTION

Utilizing, in part, the bank structure which previously occupied the ground, the theatre pictured here is a praiseworthy addition to Atlantic City's avenue houses.

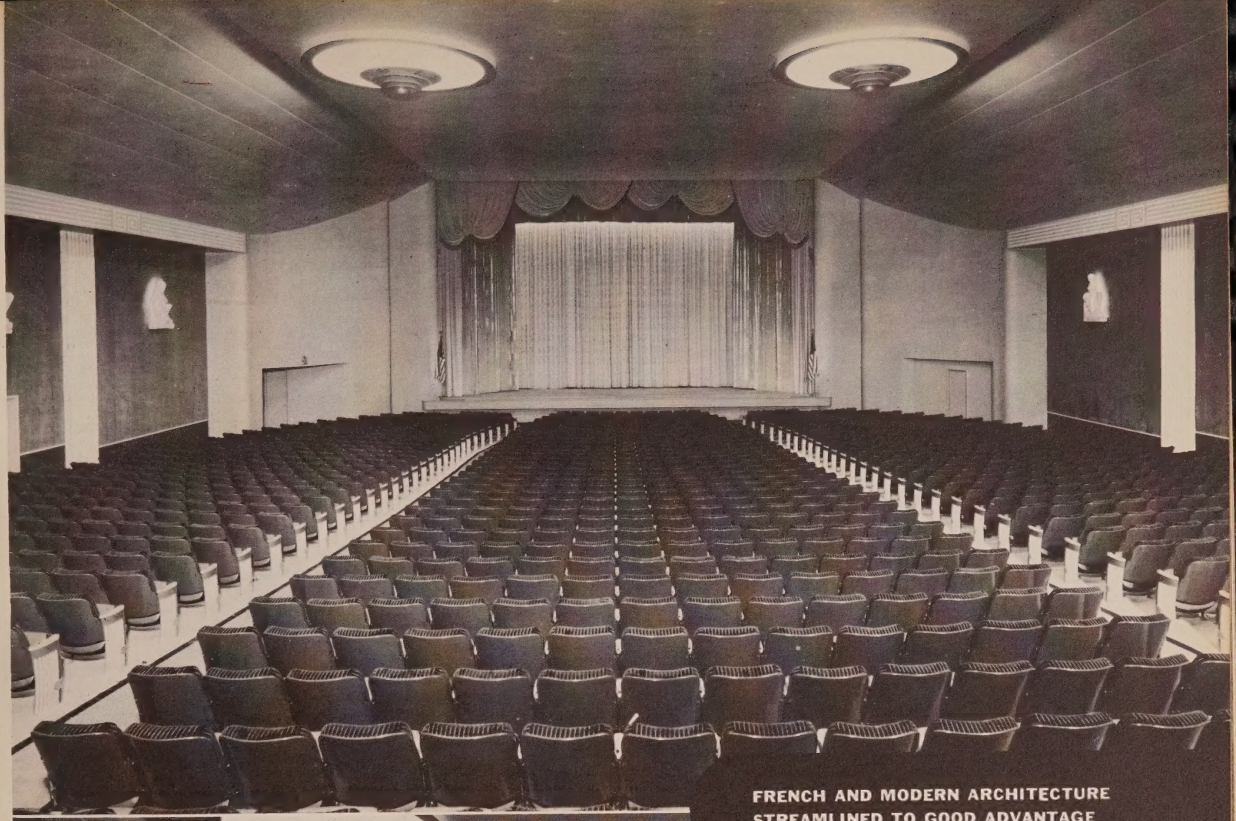
CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 18

THE NEW

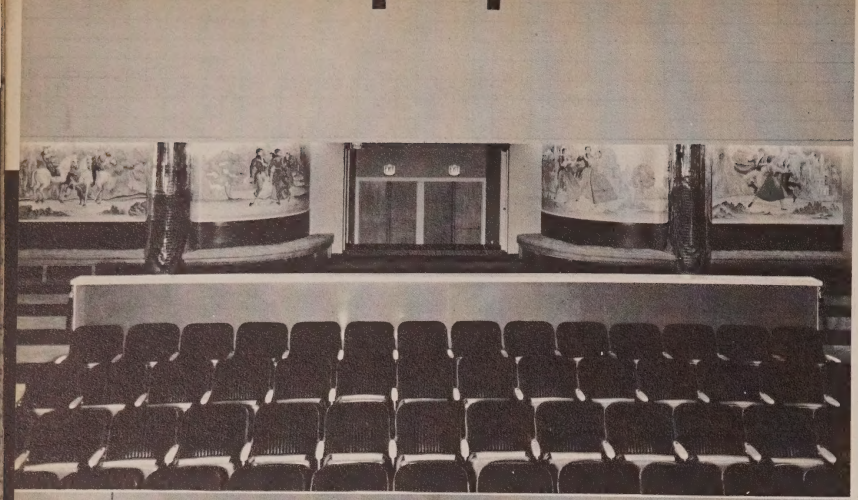
Embassy

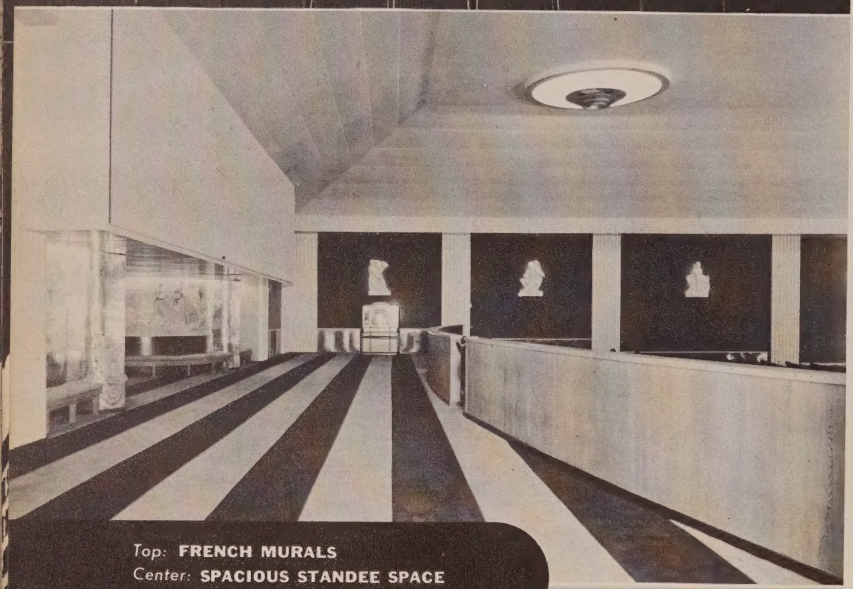
ATLANTIC CITY, N. J.

The theatre is intended as a year-round house, with a run immediately following the Boardwalk engagements. Architect Armand Carroll designed the theatre for operators Wielland and Lewis, embodying many of the latest developments in theatre-planning. The front is brilliantly lighted by fluorescent tubes in the soffit. The lower facade is entirely glass, with the unique treatment of the boxoffice especially noteworthy. Inside, the French and modern styles have been combined for good results. The walls are covered with velvet over a rockwool base. Blue lights have been placed behind the white plastic statuettes, giving a silhouette effect.

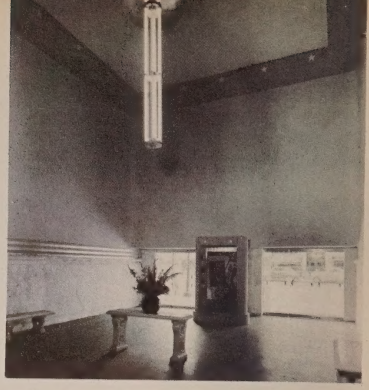


FRENCH AND MODERN ARCHITECTURE
STREAMLINED TO GOOD ADVANTAGE





Top: **FRENCH MURALS**
Center: **SPACIOUS STANDEE SPACE**
Bottom: **MIRRORED LOBBY**



ATMOSPHERE OF GRANDEUR

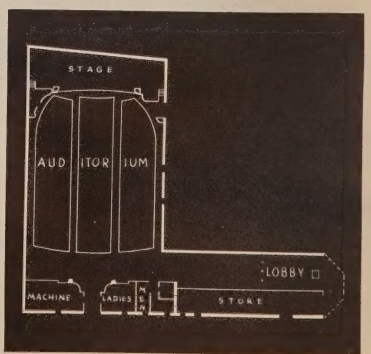
REFERENCE FACTS:

EMBASSY THEATRE

ATLANTIC CITY, N. J.

Owner: Wielland and Lewis
Architect: Armand Carroll
Size of Lot: Irregular
Seating Capacity: 1485
Cost of Theatre: Not Available

Acoustical Treatment—Velvet over rockwool and celotex tile. Rockwool manufactured by Keasbey & Mattison Co. Celotex manufactured by The Celotex Corp.
Air Conditioning—Well water system. Coiling coils manufactured by The Trane Co. Blowers manufactured by American Foundry & Furnace Co. Equipment furnished by George C. Lewis.
Candy Machines—Installed by Berlo Vending.
Carpets—Manufactured by C. P. Cochrane Co.
Chairs—Manufactured by American Seating Co.
Construction Material—Limestone, Carrara structural glass, brick, steel. Carrara manufactured by Pittsburgh Plate Glass Co.
Curtain Controls and Track—A.D.C. Manufactured by Automatic Devices Co.
Decorator—Armando T. Ricci.
Display Frames—Aluminum frames manufactured by Pittsburgh Plate Glass Co.
Entrance Doors—Herculite. Manufactured by Pittsburgh Plate Glass Co.
Generators—Hertner. Manufactured by Hertner Electric Co.
Lighting Fixtures—Manufactured by Voigt Co.
Projection Lamps—High intensity. Manufactured by Hall and Connelley.
Projection Machines—Simplex E-7. Manufactured by International Projector Corp.
Screen—RCA Magic. Manufactured by RCA Manufacturing Co.
Sign and Marquee—Fabricated and erected by Joseph Josephson.
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.
Sound—Simplex 4-Star. Manufactured by International Projector Corp.
Stage Drapes, Curtains and Wall Fabrics—Installed by Novelty Scenic Studios, Inc.
Supply Dealer—National Theatre Supply Co.



FIRST

100 to 700 Seat Class

BRONZE PLAQUE WINNER

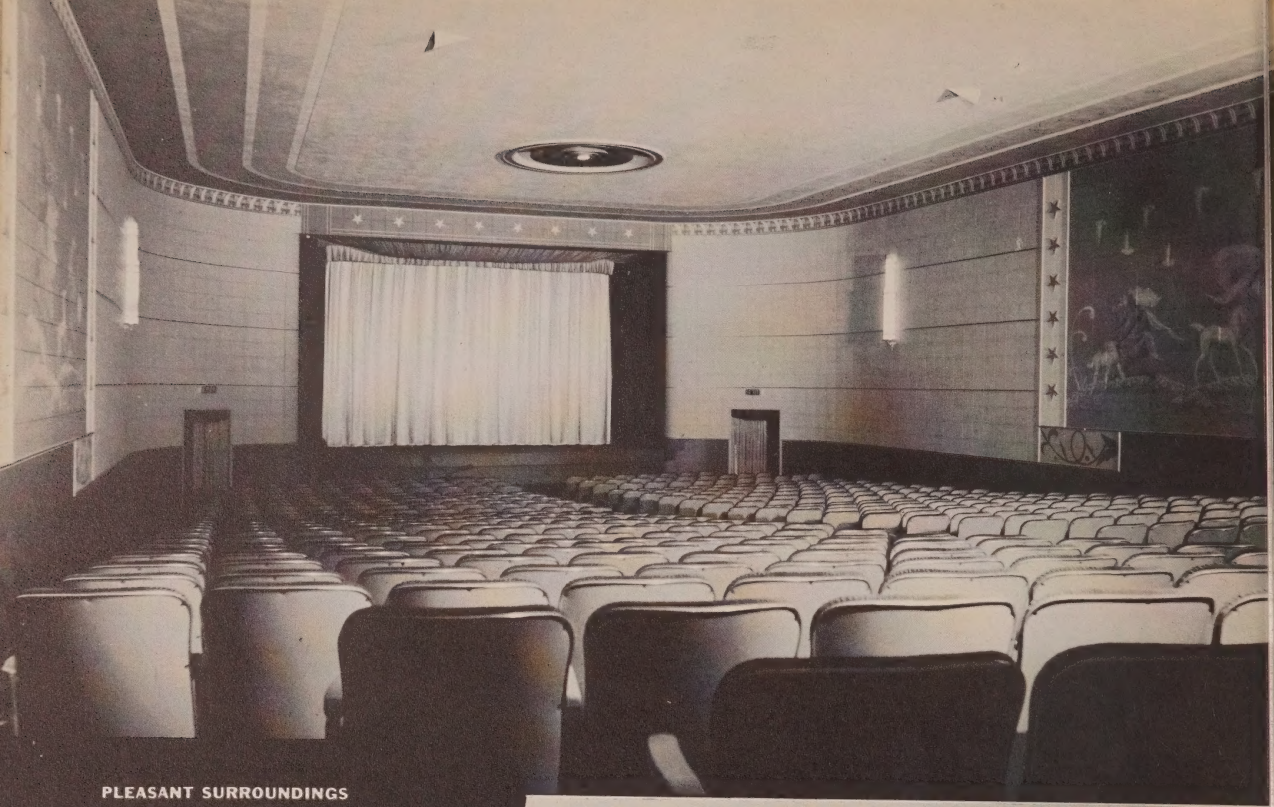
1941

THE NEW

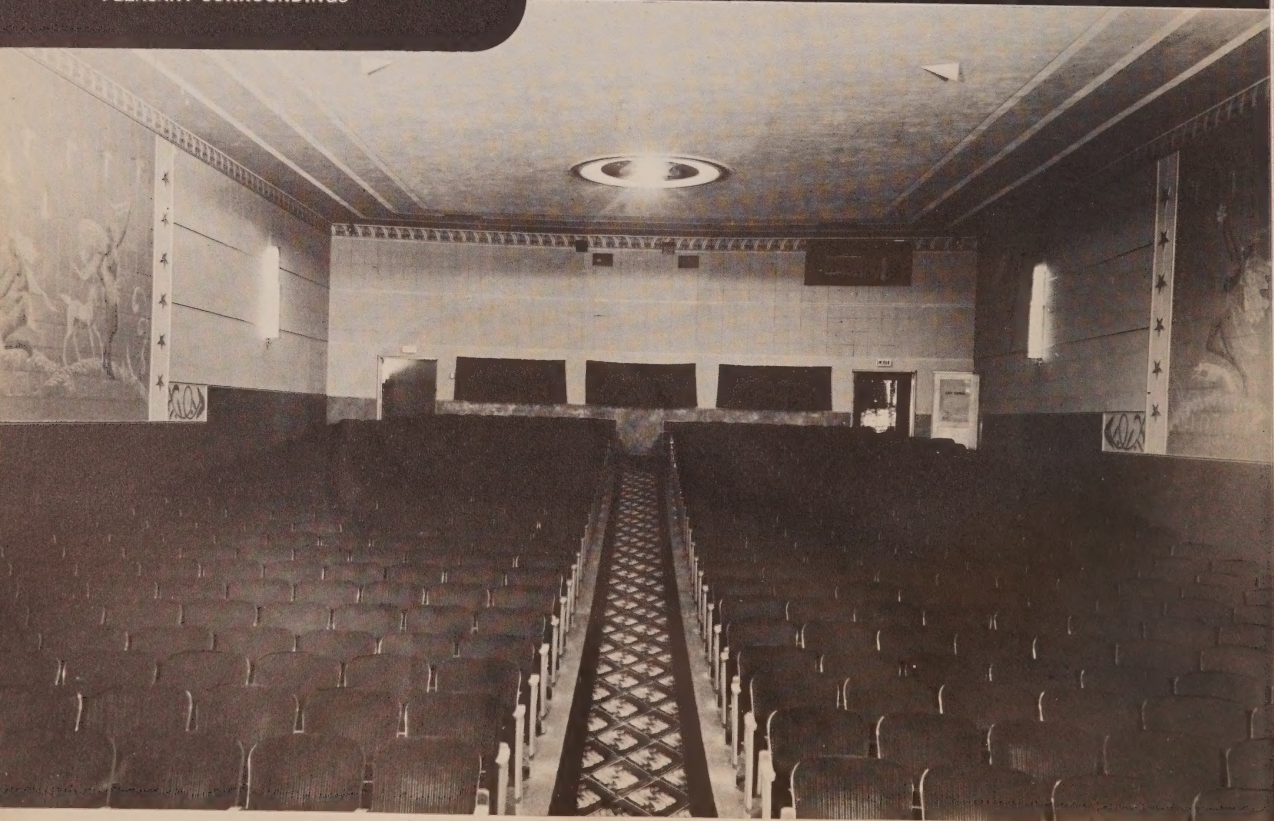
College

BROOKINGS, S. D.

The latest addition to the expanding business district of Brookings, South Dakota (population, 4,376), is Frank McCarthy's new College Theatre, erected on the site of the old Grand Opera house. The theatre, which is the most modern structure in the town, was designed by McCarthy, who also operates the State and Fad theatres in Brookings. The facade of the theatre has been covered with colorful porcelain enamel. Because of the lack of a marquee, the box office has an inside wicket for use in bad weather. A feature of the comfortable and attractive foyer-lounge, which also serves as the standee room is the magic drinking fountain operated by photo-electric cells. The water begins to flow automatically when a patron approaches. The outstanding features in the auditorium are the fluorescent carpets, which glow dimly in the darkened theatre, and the murals on the side walls depicting the four seasons.



PLEASANT SURROUNDINGS



REFERENCE FACTS:

COLLEGE THEATRE

BROOKINGS, S. D.

Owner: Frank J. McCarthy
Size of Lot: 50 x 165
Seating Capacity: 575
Cost of Theatre: Not Available

Acoustical Treatment—Celotex tile. Manufactured by The Celotex Corp.

Air Conditioning—Blower system with National fans and blowers. Manufactured by American Blower Corp.

Carpets—Alexander Smith Fluorescent. Manufactured by Alexander Smith & Sons Co.

Chairs—Irwin Crusader. Manufactured by Irwin Seating Co.

Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.

Decorator—Otto Neilson.

Display Frames—Solid aluminum. Manufactured by National Screen Service, Inc.

Furniture—Manufactured by Dunbar Furniture Co.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—General Electric fluorescent units.

Projection Lamps—Simplex High. Manufactured by Strong Electric Co.

Projection Machines—Simplex. Manufactured by International Projector Corp.

Screen—Walker plastic molded. Manufactured by Walker-American Corp.

Sign and Marquee—Fabricated and erected by Gorne-Barker.

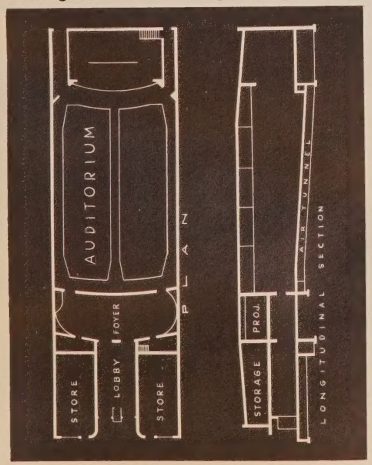
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

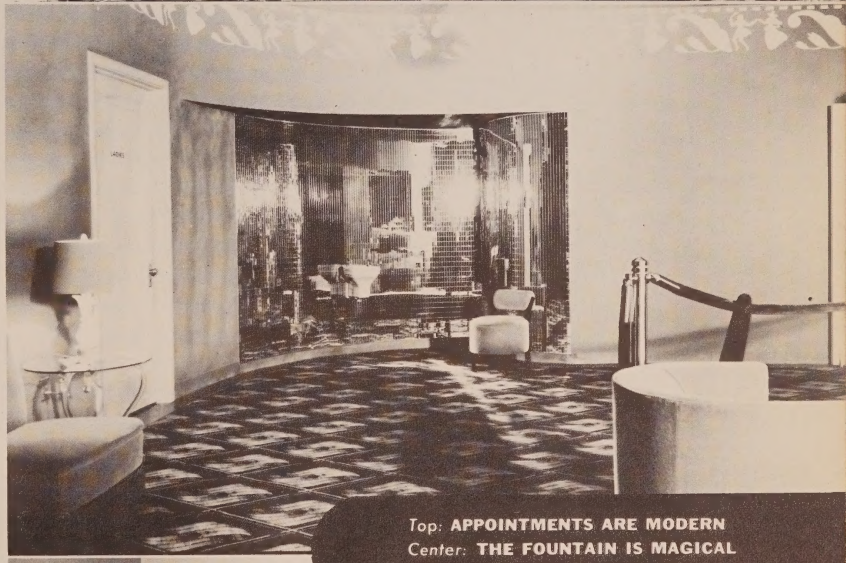
Sound—Western Electric. Manufactured by Western Electric Co.

Supply Dealer—Joe Bradley and National Theatre Supply Co.

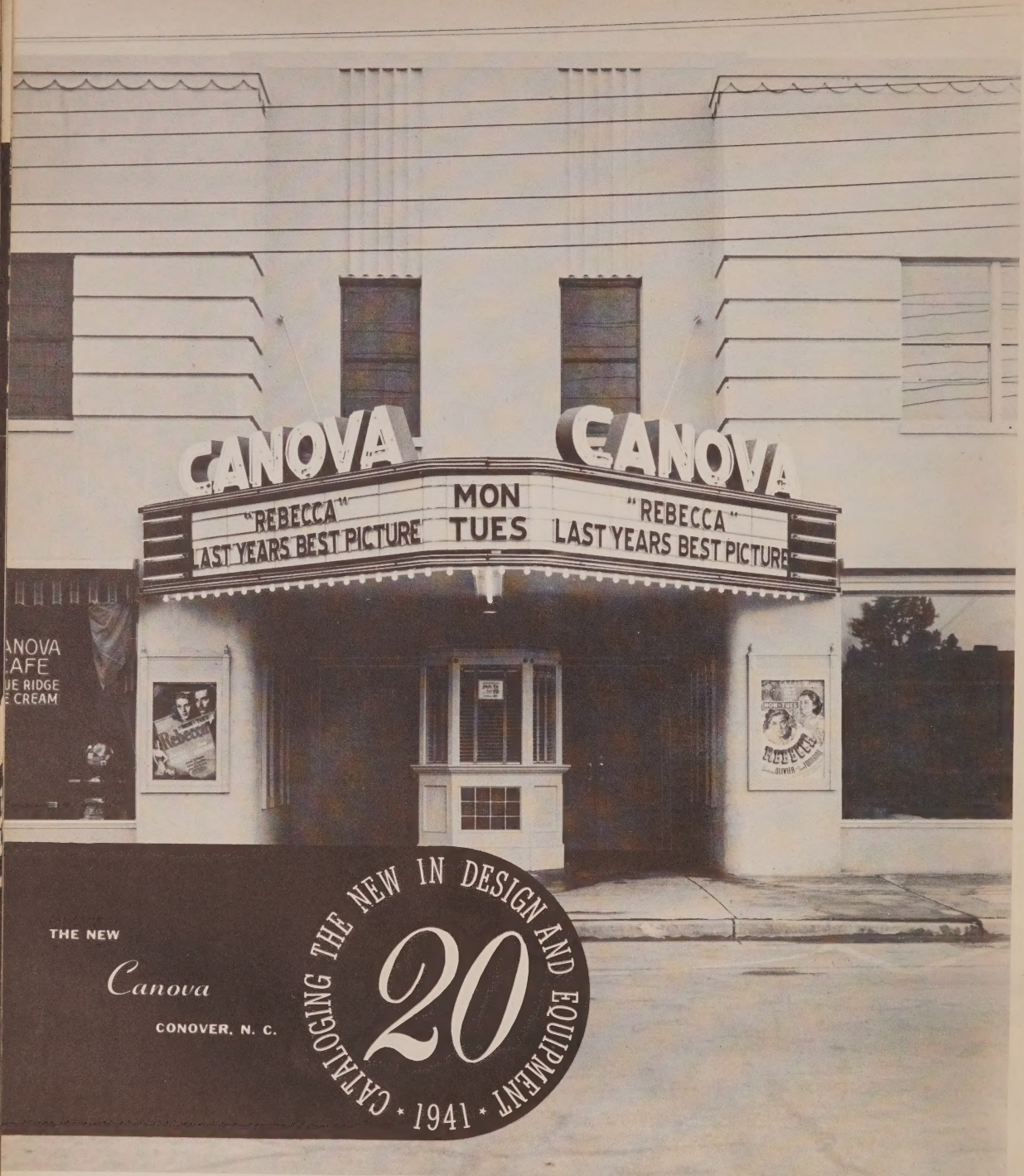
Stage Drapes and Curtains—Manufactured by S. Marvin Harris.

Vending Machines—Mfd. by Manley, Inc.





Top: **APPOINTMENTS ARE MODERN**
Center: **THE FOUNTAIN IS MAGICAL**
Bottom: **FOR CRYING CHILDREN**



A fine example of small-town theatre construction is shown in these views of the new Canova, Conover, North Carolina. Situated in the main shopping district, it plays first-run pictures at an admission of 10 cents and 25 cents. The front of the building has been finished with stucco painted in two tones of green. In the auditorium corrugated asbestos has been used for the wainscot, with fiber-boards in a variety of colors covering the upper walls. At both sides of the proscenium, fluted wood, painted to match the wainscot, covers the wall from floor to ceiling.

REFERENCE FACTS:

CANOVA THEATRE

CONOVER, NORTH CAROLINA

Owner: V. O. Sipe

Operator: Colonial Theatres, Inc.

Architect: Robert L. Clemmer

Size of Lot: 60 x 200

Seating Capacity: 512

Cost of Theatre Building Exclusive of Equipment: $29,400

Cost of Equipment: $10,000

Acoutiscal Treatment—Gold Bond Wall Board. Manufactured by National Gypsum Co.

Air Conditioning—Blower system with National fans and blowers. Manufactured by American Blower Corp.

Carpets—Manufactured by Alexander Smith & Sons Co.

Chairs—Irwin Clipper. Manufactured by Irwin Seating Co.

Curtain Controls—Vallen. Manufactured by Vallen, Inc.

Furniture—Royal Chrome. Manufactured by Royal Metal Mfg. Co.

Lighting Fixtures—Manufactured by Charlotte Sign Co.

Projection Lamps—Simplex High. Manufactured by Strong Electric Co

Projection Machines—Super Simplex. Manufactured by International Projector Corp.

Rectifiers—Simplex High. Manufactured by Strong Electric Co.

Sign and Marquee—Fabricated and erected by Charlotte Sign Co.

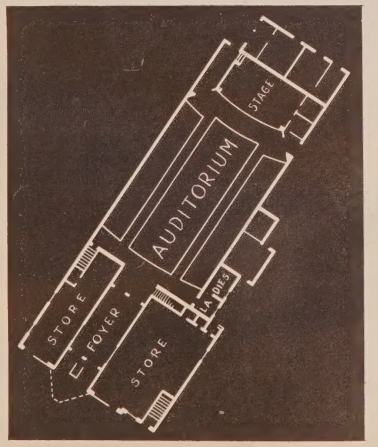
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

Sound—Motiograph Mirrophonic DeLuxe.

Supply Dealer—National Theatre Supply Co.

Stage Drapes and Curtains—Manufactured by Bil-Art Studios, Inc.

Ticket Chopper—Golde. Manufactured by Golde Mfg. Co.



Top: **MODERN DECORATIVE SCHEME**
Center: **LOVE SEATS FOR COMFORT**
Bottom: **FRONT, INCLUDING STORES**

THE NEW

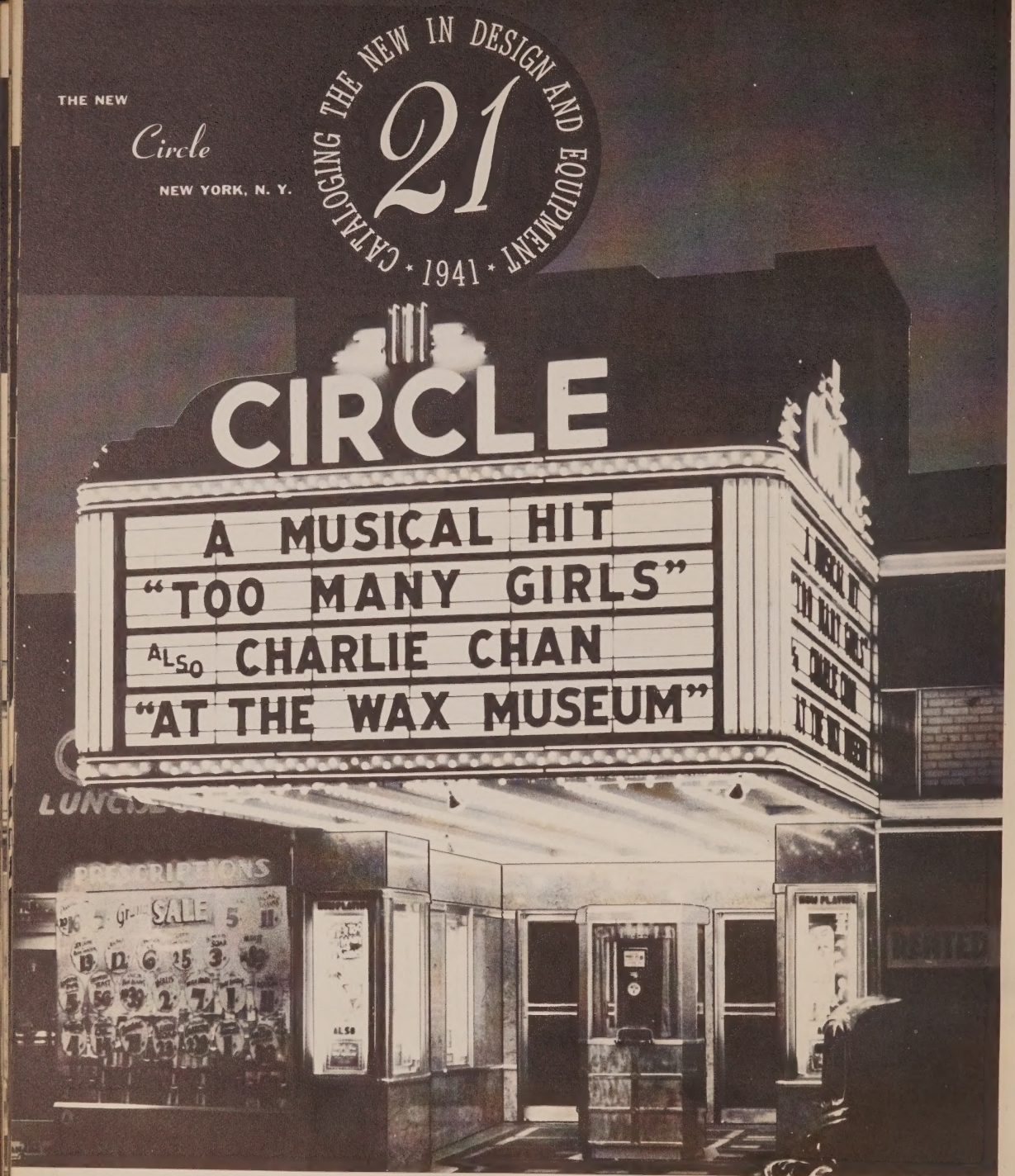
Circle

NEW YORK, N. Y.

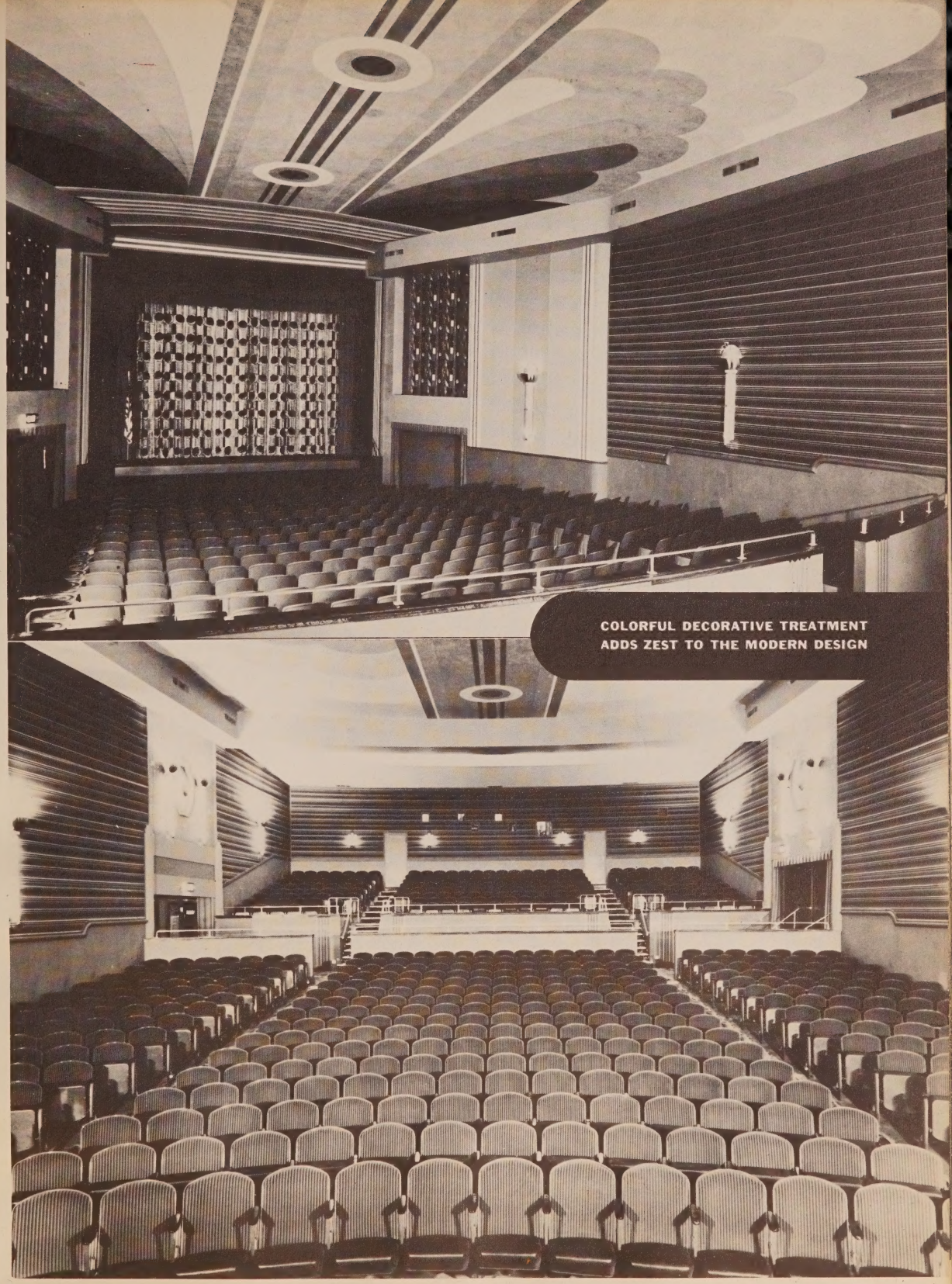
CATALOGING THE NEW IN DESIGN AND EQUIPMENT

21

• 1941 •



In the Bronx section of New York, owner David Weinstock erected the house shown here for operation by the Kay Theatre Corporation. Situated in a neighborhood shopping district, the house's draw is chiefly from the working class. It adheres to a double feature policy with admissions of 30 cents and 10 cents. Architect Charles Sandblom chose marble for the facade covering, with stainless steel for the boxoffice and display frames. The modern design of the auditorium is enhanced by the use of a variety of colors. The side walls have been covered with damask stretched over rockwool.



COLORFUL DECORATIVE TREATMENT
ADDS ZEST TO THE MODERN DESIGN

Top: **WARMTH IS ADDED**
Bottom: **THE FRONT, DAYTIME**

REFERENCE FACTS:

CIRCLE THEATRE

NEW YORK, N. Y.

Owner: David Weinstock
Operator: Kay Theatre Corp.
Architect: Charles A. Sandblom

Size of Lot: Irregular
Seating Capacity: 599
Cost of Theatre: Not Available

Acoustical Treatment—Damask over rockwool. Rockwool manufactured by Geo. R. Hall & Sons.

Air Conditioning—Armo Cooling and Ventilating.

Candy Machines—Installed by Sanitary Automatic Candy Corp.

Carpets—Manufactured by Alexander Smith & Sons Co.

Chairs—Manufactured by Heywood-Wakefield Co.

Coinchanger—Brandt Automatic Cashier Co.

Curtain Controls and Track—A.D.C. Manufactured by Automatic Devices Co.

Decorator—I. Miller and Novelty Scenic Studios, Inc.

Display Frames—Manufactured by Stanley Frame Co.

Furniture—Manufactured by Biltmore Co.

Generators—Manufactured by Century Electric Co.

Lighting Fixtures—Manufactured by Charles J. Winston Co.

Projection Lamps—Strong. Manufactured by Strong Electric Co.

Projection Machines—Simplex. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by O. W. Jackson Co.

Screen—Raytone. Manufactured by Raytone Screen Co.

Sign and Marquee—Fabricated and erected by Artkraft-Strauss Sign Corp.

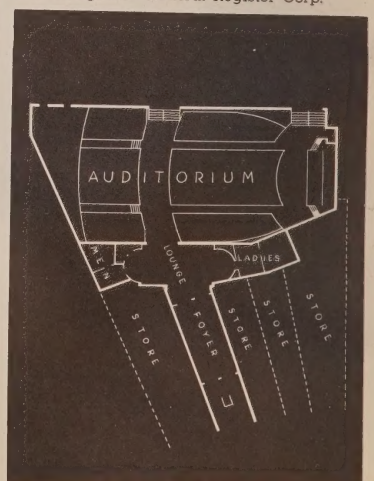
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Amusement Supply Co.

Stage Curtains and Drapes—Manufactured by Novelty Scenic Studios, Inc.

Ticket Register—General Register Corp.

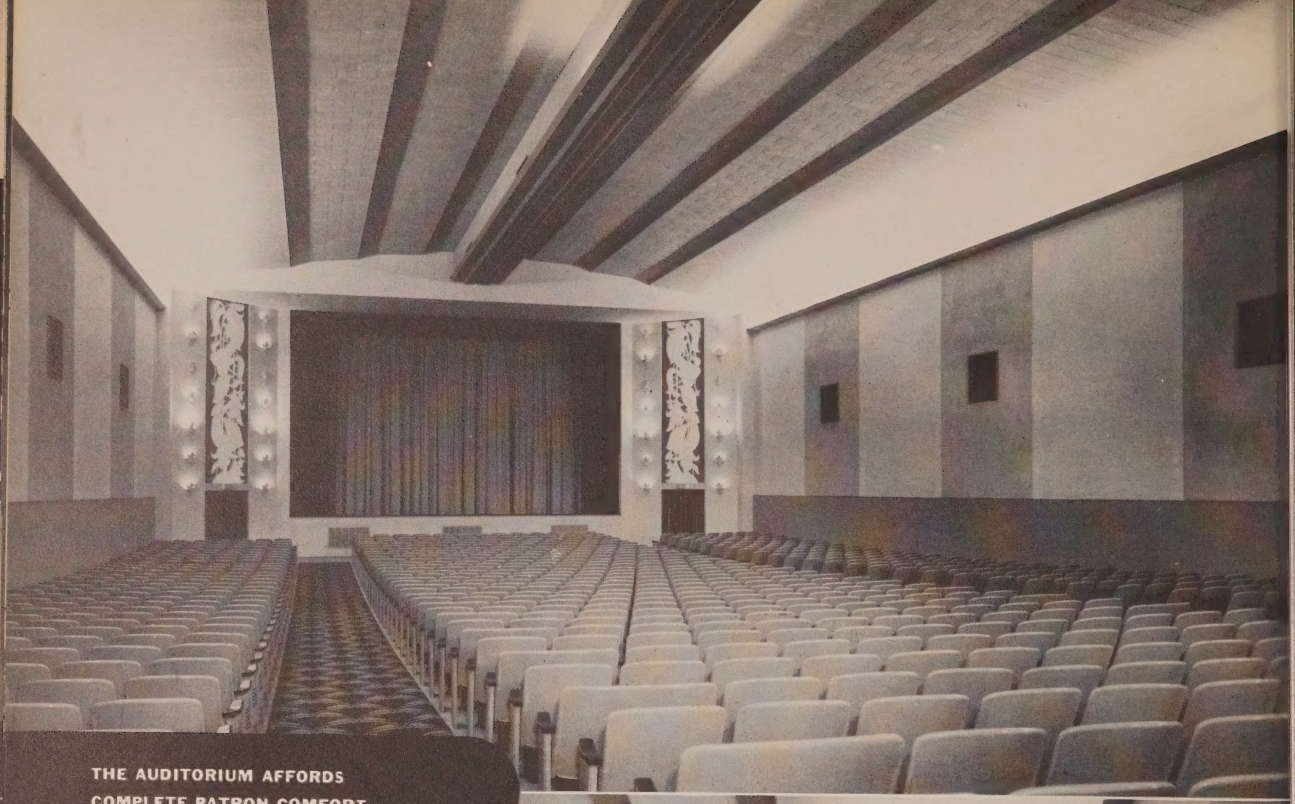


CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 22

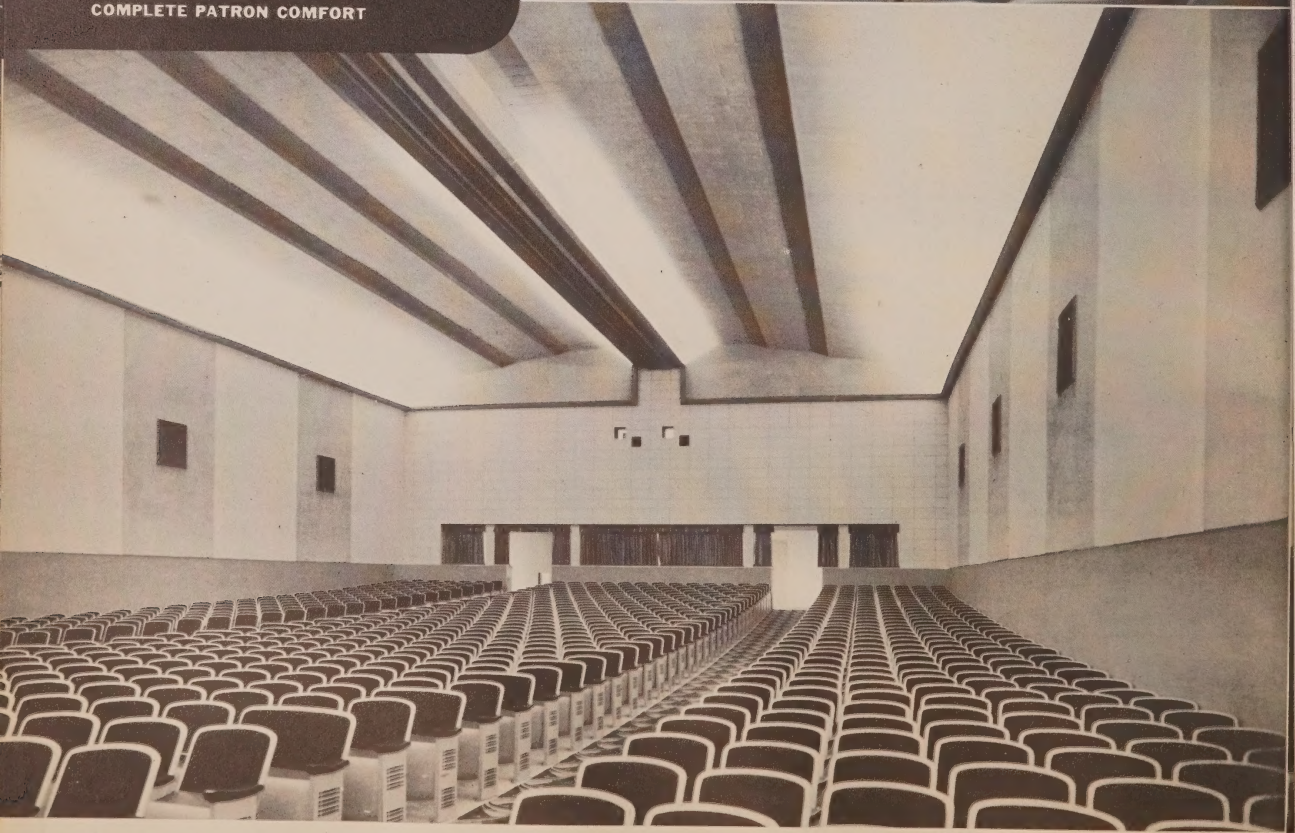
THE NEW *Loop*

MOBILE, ALA.

Very early in 1941, Paramount-Richards Theatres, Inc. opened to the public this modern 928-seat deluxe house. Situated in a residential section of Mobile, Alabama, it caters to a better class patronage numbering about 10,000. The exterior is most unusual, with the boxoffice and signwork a single unit separate from the rest of the building. A bicycle-rack is included as part of the equipment. Simplicity, the keynote of the over-all design, is most evident in the views of the auditorium, where a pleasant, restful atmosphere has been attained.



THE AUDITORIUM AFFORDS
COMPLETE PATRON COMFORT



REFERENCE FACTS:

LOOP THEATRE
MOBILE, ALABAMA

Owner: Paramount-Richards Theatre, Inc.

Architect: J. T. Knight, Jr.

Size of Theatre Lot: 57 x 147

Seating Capacity: 928

Cost of Theatre (Exclusive of Equipment): $43,510.27

Cost of Equipment: $17,870.23 (Air Conditioning $15,328.00 Extra)

Acoustical Material—Celotex tiles and Sabinite plaster. Celotex manufactured by Celotex Corp. Sabinite manufactured by U. S. Gypsum Co.

Air Conditioning—Refrigeration system. Manufactured by Westinghouse Mfg. Co.

Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—International. Manufactured by International Seat Corp.

Coin Changer—Manufactured by Brandt Mfg. Co.

Curtain Controls and Track—A.D.C. Manufactured by Automatic Devices Co.

Decorator—Josef Lentz.

Display Frames—Manufactured by general contractor.

Draperies and Stage Curtains—Manufactured by Wil-Kin Theatre Supply, Inc.

Lighting Fixtures—Manufactured by Electrical Supply Co.

Projection Lamps—Brenkert. Manufactured by Brenkert Light Projection Co.

Projection Machines—Brenkert. Manufactured by Brenkert Light Projection Co. Motiograph Model K. Manufactured by Motiograph, Inc.

Rectifiers—Forest. Manufactured by Forest Mfg. Co.

Rubber Mats—Goodyear. Manufactured by Goodyear Rubber Co.

Screen—Dalite. Manufactured by Dalite Screen Co.

Sign and Marquee—Fabricated and erected by Alabama Neon Sign Service.

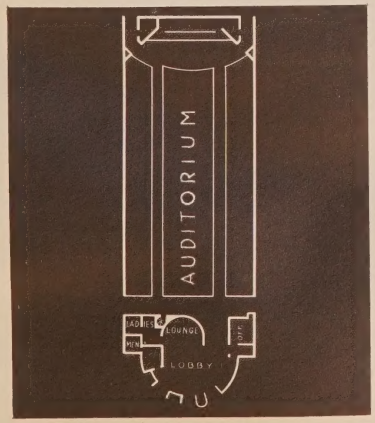
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Sound—R.C.A. Manufactured by R.C.A. Mfg. Co. Motiograph Mirrophonic DeLuxe.

Supply Dealer—Wil-Kin Theatre Supply, Inc.

Vending Machines—Burch popcorn machine. Manufactured by Burch Mfg. Co.

Ticket Register—General Register Corp.



Top: **INTERESTING FOYER NOOK**

Bottom: **A MODERN CANDY COUNTER**

THE NEW

Delaware

ALBANY, N. Y.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

23

1941

Warner Brothers is the operator of this new Albany, New York, house—the Delaware, designed by architects Blatner and van der Bogert. In designing the marquee, attraction boards were omitted, with all billing contained in display frames. The general design is modern, and the interior decoration has been planned so that the proscenium is surrounded by darker colors so as to prevent distraction. The house serves a "white collar" class and is third run in the city. The adult admission price is 25 cents.

REFERENCE FACTS:

DELAWARE THEATRE
ALBANY, NEW YORK

Owner: Delaware Theatres, Inc.
Operator: Warner Brothers
Architect: Blatner & van der Bogert

Size of Lot: 73 x 350
Seating Capacity: 699
Cost Exclusive of Equipment: $53,000 (This Figure Includes Air Conditioning)

Acoustical Material—Fabric over rockwool. Rockwool manufactured by Geo. R. Hall & Sons Co.

Air Conditioning—Typhoon Icedaire. Manufactured by Typhoon Air Conditioning Co.

Candy Machines—Installed by Tri-State Vending Co.

Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Ideal. Manufactured by Ideal Seating Co.

Decorator—Rambusch, Inc.

Display Frames—Stainless Steel and Walnut. Manufactured by general contractor.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lighting Fixtures—Manufactured by Rambusch, Inc.

Projection Lamps—Ashcraft. Manufactured by C. S. Ashcraft Mfg. Co.

Projection Machines—Simplex. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by O. W. Jackson Co.

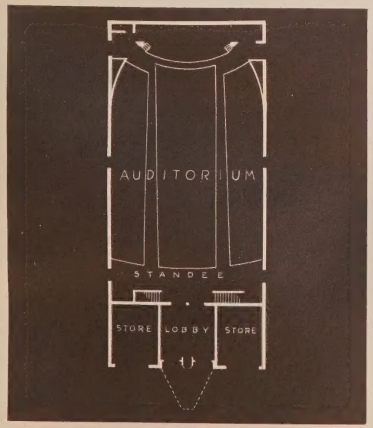
Screen—Hurley. Manufactured by Hurley Screen Company.

Sign and Marquee—Fabricated and erected by Kolite Corp.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Continental Theatre Accessories, Inc.

Stage Drapes and Curtains—Manufactured by Charles H. Kenney Studios, Inc.
Ticket Register—General Register Corp.

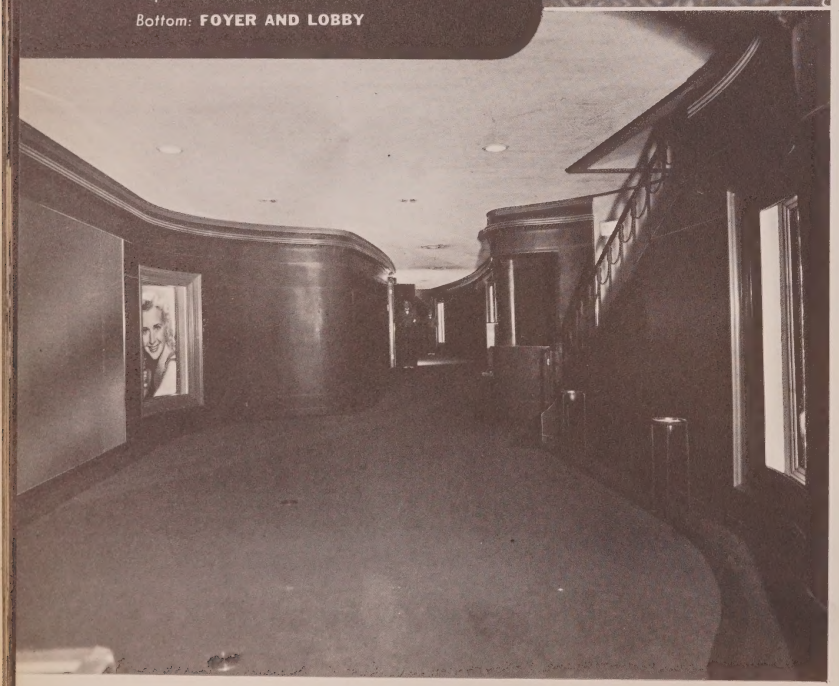


MODERNLY DESIGNED AUDITORIUM

"THE GREAT LIE"
WITH BETTE DAVIS
GEORGE BRENT-MARY ASTOR
THE "GREAT LIE"
WITH BETTE DAVIS
GEORGE BRENT
WELCOME
FOUNTAIN
THE NEW
St. Johns
JACKSONVILLE, FLA.
CATALOGING THE NEW IN DESIGN AND EQUIPMENT
24
1941

ALL "GINGERBREAD" HAS
BEEN OMITTED FROM THE DESIGN

Top: **THE MAGNOLIA ROOM**
Bottom: **FOYER AND LOBBY**



The St. Johns Operating Company recently opened this new theatre in the main business section of Jacksonville, Florida. The house, named the St. Johns, has been expertly appointed and contains many modern innovations in theatre design. The exterior is a sure-fire attention getter, with illuminated glass brick as the background for the theatre name sign, and brilliantly-lit marquee. The decorative treatment of the auditorium is simple, but special heed should be given to the Magnolia Room, which has modern appointments which would do justice to Americas finest theatres.

REFERENCE FACTS:

ST. JOHNS THEATRE
JACKSONVILLE, FLORIDA

Owner: St. Johns Operating Corp.
Architect: Robert E. Collins

Size of Lot: 96 x 105
Seating Capacity: 856
Cost of Theatre (Exclusive of Equipment): $90,000
Cost of Equipment: $30,000 (Air Conditioning $16,000 Additional)

Acoustical Material—Sprayed Limpet asbestos. Manufactured by Keasbey-Mattison Co.

Air Conditioning—Frigidaire. Manufactured by Frigidaire Corp.

Candy Counter—Built and serviced by Southern Automatic Candy Co.

Carpets—Manufactured by Bigelow-Sanford Carpet Co.

Chairs—Bodiform. Manufactured by American Seating Co.

Chair Fabric—Manufactured by L. C. Chase & Co.

Coin Changer—Manufactured by Johnson Farebox Co.
Curtain Controls—Manufactured by ADC.
Decorator—Louis D'Arclay.

Display Frames—Exterior frames; aluminum. Interior frames; wood.

Generators—Robin Imperial. Manufactured by J. E. Robin, Inc.

Lighting Fixtures—Manufactured by Rambusch, Inc. and Hub Electric Co., & Voigt Co.

Projection Lamps—Ashcraft Suprex. Manufactured by C. S. Ashcraft Mfg. Co.

Projection Machines—Century. Manufactured by Century Electric Co.

Rubber Mats—Manufactured by O. W. Jackson Co.

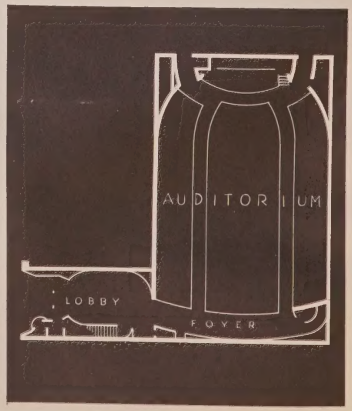
Screen—RCA Magic. Manufactured by RCA Mfg. Co.

Sign and Marquee—Fabricated and erected by Balton Sign Co.

Sign Letters—Adler. Manufactured by Adler Silhouette Co.

Sound—RCA. Manufactured by RCA Manufacturing Co.

Supply Dealer—Capitol Motion Picture Supply Corp.



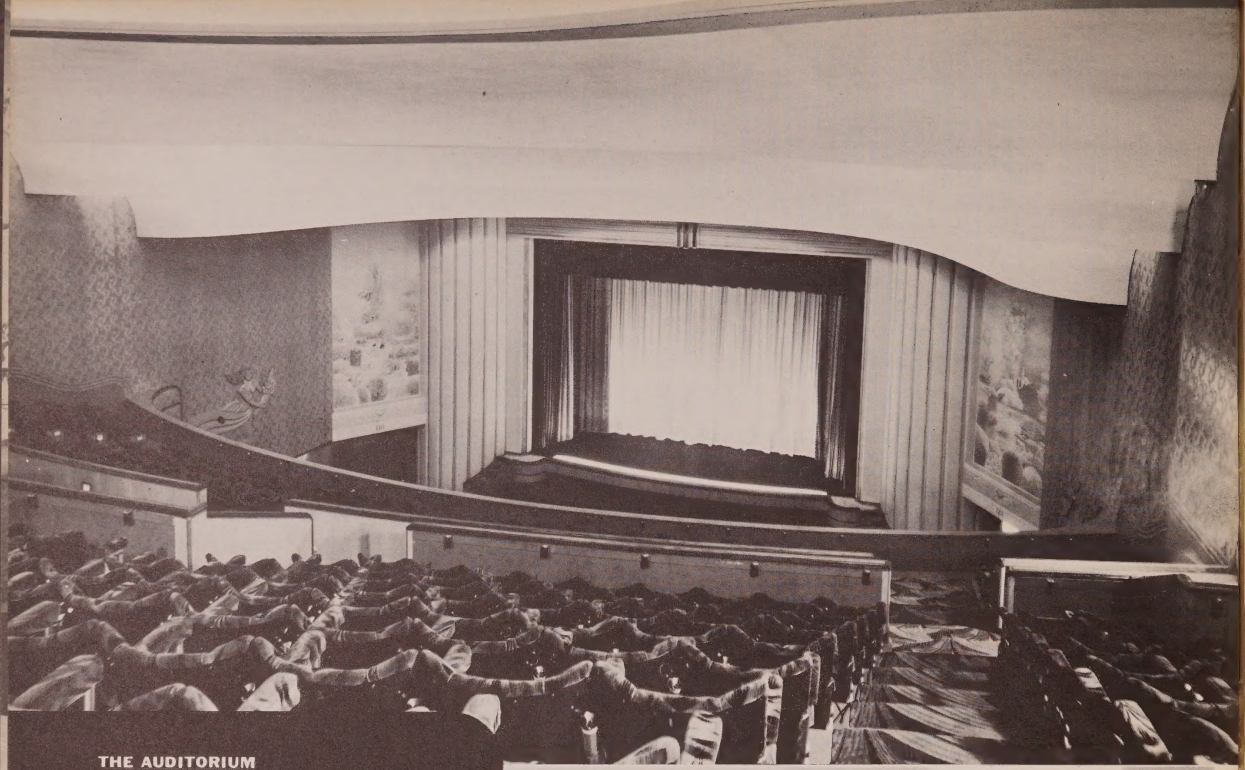
CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 25

THE NEW

Vogue

VANCOUVER, B. C.

One of four theatres in Vancouver, B. C., recently purchased by the Odeon Theatre Company, this house was built by Vested Estates, Ltd., who sold it to Odeon during construction. The theatre is located in the main business district of the city and is of modern design, with luxurious appointments.



THE AUDITORIUM

REFERENCE FACTS:

VOGUE THEATRE

VANCOUVER, B. C.

Owner: Vested Estates, Ltd.

Operator: Odeon Theatres of Canada, Ltd.

Architect: Kaplan & Sprachman

Size of Lot: 75 x 120

Seating Capacity: 1347

Cost of Theatre Exclusive of Equipment: $225,000

Cost of Equipment: $100,000

Acoustical Material—Balsam wool covered with velour fabric.

Air Conditioning—Manufactured by York Ice Machine Co.

Carpets—English Wilton. Manufactured by P. F. Frith & Sons.

Chairs—British luxury plush. Manufactured by C. R. Harrison & Sons, Ltd.

Coin Changer—Brandt Automatic. Manufactured by Brandt Automatic Cashier Co.

Curtain Controls—Manufactured by Weaver Mfg. Co.

Decorator—E. Prentiss.

Furniture—Manufactured by David Spencer, Ltd.

Generators—Robin Imperial. Manufactured by J. E. Robin, Inc.

Projection Lamps—Manufactured by Brenkert Light Projection Co.

Projection Machines—Manufactured by Brenkert Light Projection Co.

Rectifiers—G. E. Copper Oxide. Manufactured by General Electric Co.

Screen—Manufactured by Dalite Screen Co.

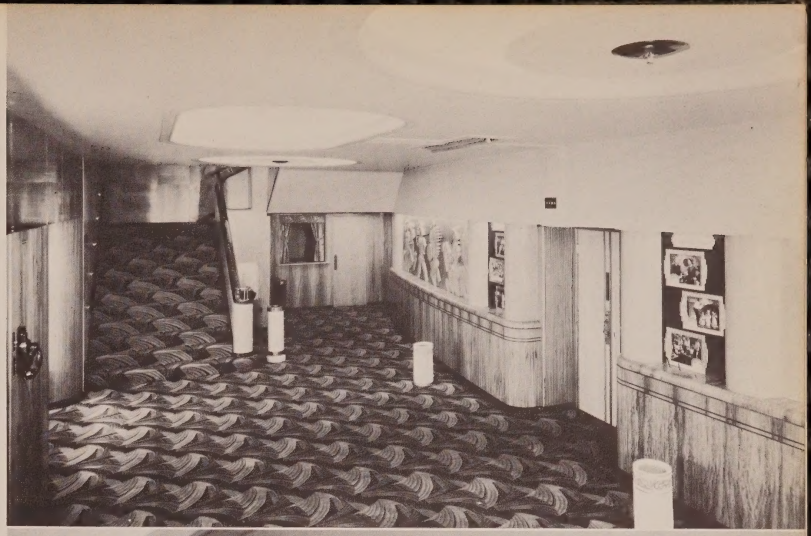
Sign and Marquee—Fabricated and erected by Neon Products of Western Canada, Ltd.

Sign Letters—Manufactured by Wagner Sign Service, Ltd.

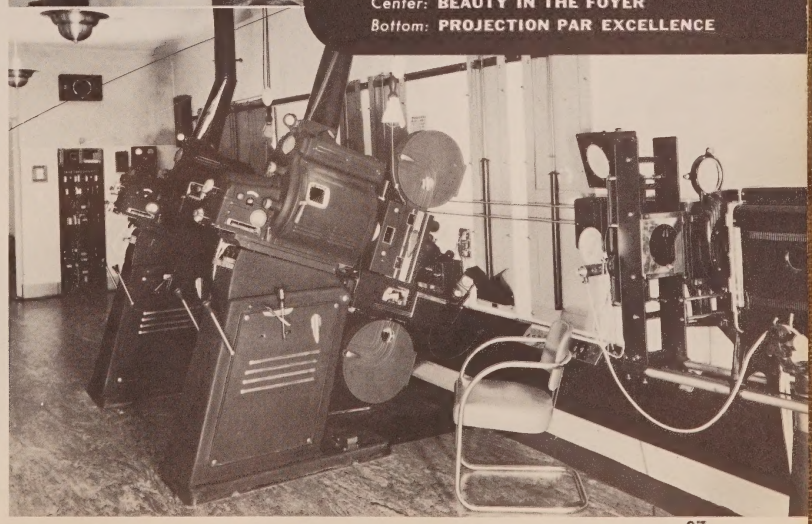
Sound—RCA. Manufactured by RCA Mfg. Co.

Ticket Register—Manufactured by General Register Corp.

LADIES' LOUNGE ROOM



Top: **AN INVITING LOBBY**
Center: **BEAUTY IN THE FOYER**
Bottom: **PROJECTION PAR EXCELLENCE**



CATALOGING THE NEW IN DESIGN AND EQUIPMENT

26

• 1941 •

THE NEW

Pix

LAPEER, MICH.

The second theatre to be erected in Lapeer, Michigan—a town of some 5,000 inhabitants—the Pix compares in construction and design with many large city houses. Owned by George F. Smith and operated by S. Jay Lishness, the builder, the house has a single feature policy at 10 cents and 30 cents.

REFERENCE FACTS:

PIX THEATRE

LAPEER, MICHIGAN

Owner: George F. Smith

Operator: S. Jay Lishness

Architect: E. R. Dunlap

Size of Lot: 40 x 120

Seating Capacity: 512

Cost Exclusive of Equipment: $36,000

Cost of Equipment: $15,000

Acoustical Material—Nuwood. Manufactured by Wood Conversion Co.

Air Conditioning—System manufactured by American Blower Co.

Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs — Ideal Aristocrat. Manufactured by Ideal Seating Co.

Curtain Controls — Vallen. Manufactured by Vallen, Inc.

Decorator—Vern Fockler.

Display Frames—Manufactured by Artkraft Sign Co.

Draperies and Stage Curtains—Mork-Green.

Furniture—Manufactured by Royal Metal Mfg. Co.

Fabrics—Manufactured by Maharam.

Generators—Manufactured by Benwood-Linze Co.

Lighting Fixtures—Manufactured by Beardslee Co.

Projection Lamps—Manufactured by Brenkert Light Projection Co.

Projection Machines—Manufactured by Brenkert Light Projection Co.

Rubber Mats—Manufactured by U. S. Rubber Co.

Screen—RCA Magic. Manufactured by RCA Mfg. Co.

Sign and Marquee—Fabricated and erected by Artkraft Sign Co.

Sign Letters—Manufactured by Artkraft Sign Co.

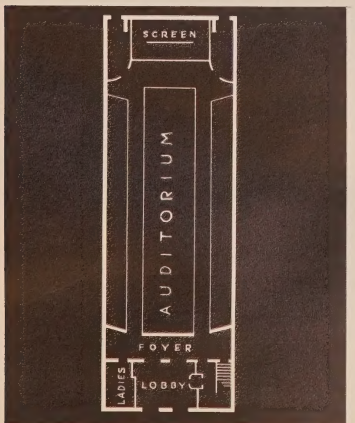
Sound—RCA. Manufactured by RCA Mfg. Co.

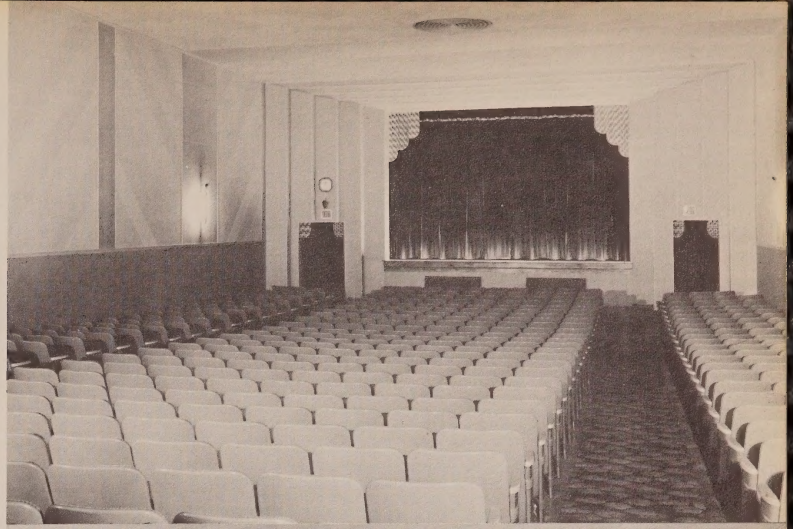
Supply Dealer—Forbes Theatre Supply and National Theatre Supply Co.

Stage Drapes and Curtains—Manufactured by Mork Green Studios.

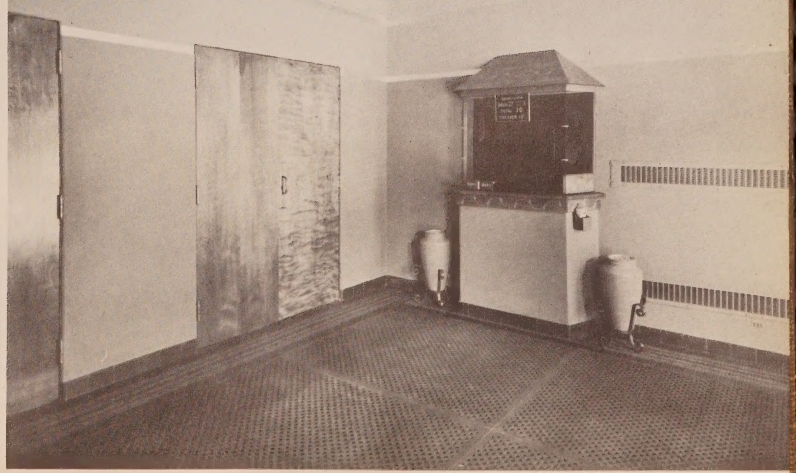
Ticket Chopper — Manufactured by Newman Brothers.

Ticket Register—General Register Corp.





Top: **PROSCENIUM SIMPLICITY**
Center: **COMFORTABLE SEATING**
Bottom: **AN INSIDE BOXOFFICE**



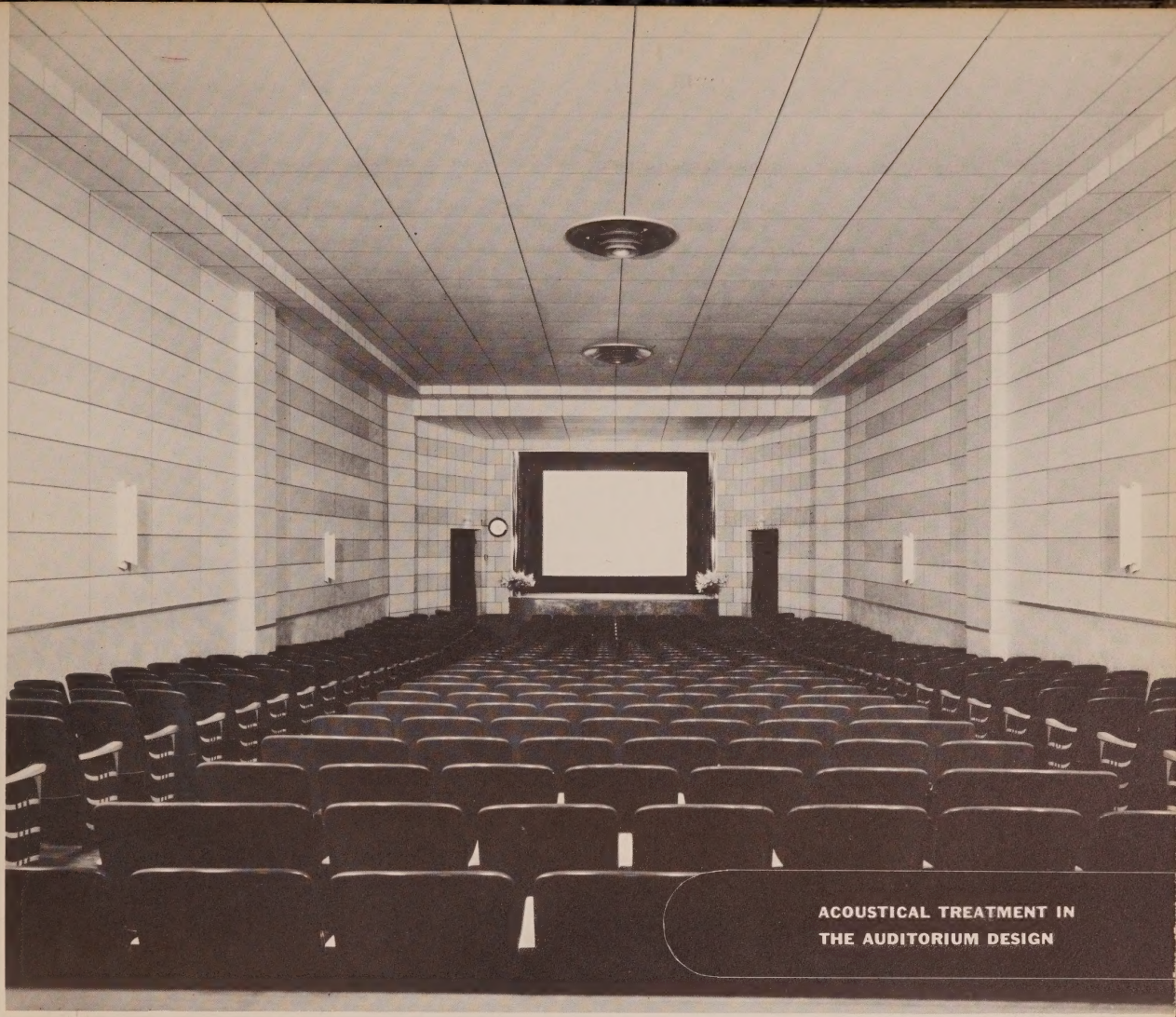
CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 27

THE NEW

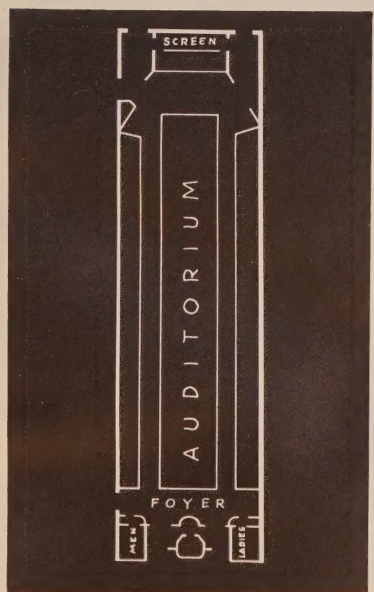
Crescent

MAHONINGTOWN, PA.

After destruction by fire last spring, this house has been almost completely rebuilt. Located in Mahoningtown, a suburb of New Castle, Pa. A single feature policy is adhered to, with the shows running from one to three days. The admission scale of the theatre is 30 cents for adults, 10 cents for children.



ACOUSTICAL TREATMENT IN THE AUDITORIUM DESIGN



REFERENCE FACTS:

CRESCENT THEATRE

MAHONINGTOWN, PA.

Owner: Louis Peretta

Operator: Claude R. Shorts

Designer: Michael Miller

Size of Lot: 39 x 117

Seating Capacity: 440

Cost of Theatre Exclusive of Equipment: $20,000

Cost of Equipment: $10,000

Acoustical Material—Celotex tile. Manufactured by The Celotex Corp.

Air Conditioning—Well water system. Manufactured by Wm. M. Clark & Co.

Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Manufactured by International Seat Corp.

Coin Changer—Brandt Automatic. Manufactured by Brandt Automatic Cashier Co.

Curtain Controls—ADC. Manufactured by Automatic Devices Co.

Decorator—Theodore Gunnett.

Display Frames — Manufactured by Artcraft Sign Co.

Draperies and Stage Curtains—Manufactured by American Valance Co.

Film Cabinets—Manufactured by Golde Mfg. Co.

Lenses—Manufactured by Bausch & Lomb.

Lighting Fixtures — Manufactured by Bruce Electric Co. and Missouri Art Fixtures.

Projection Lamps—Brenkert. Manufactured by Brenkert Light Projection Co.

Projection Machines—Century. Manufactured by Century Electric Co.

Rewinders — Golde. Manufactured by Golde Mfg. Co.

Screen—Dalite. Manufactured by Dalite Screen Co.

Sign and Marquee—Fabricated and erected by Artkraft Sign Co.

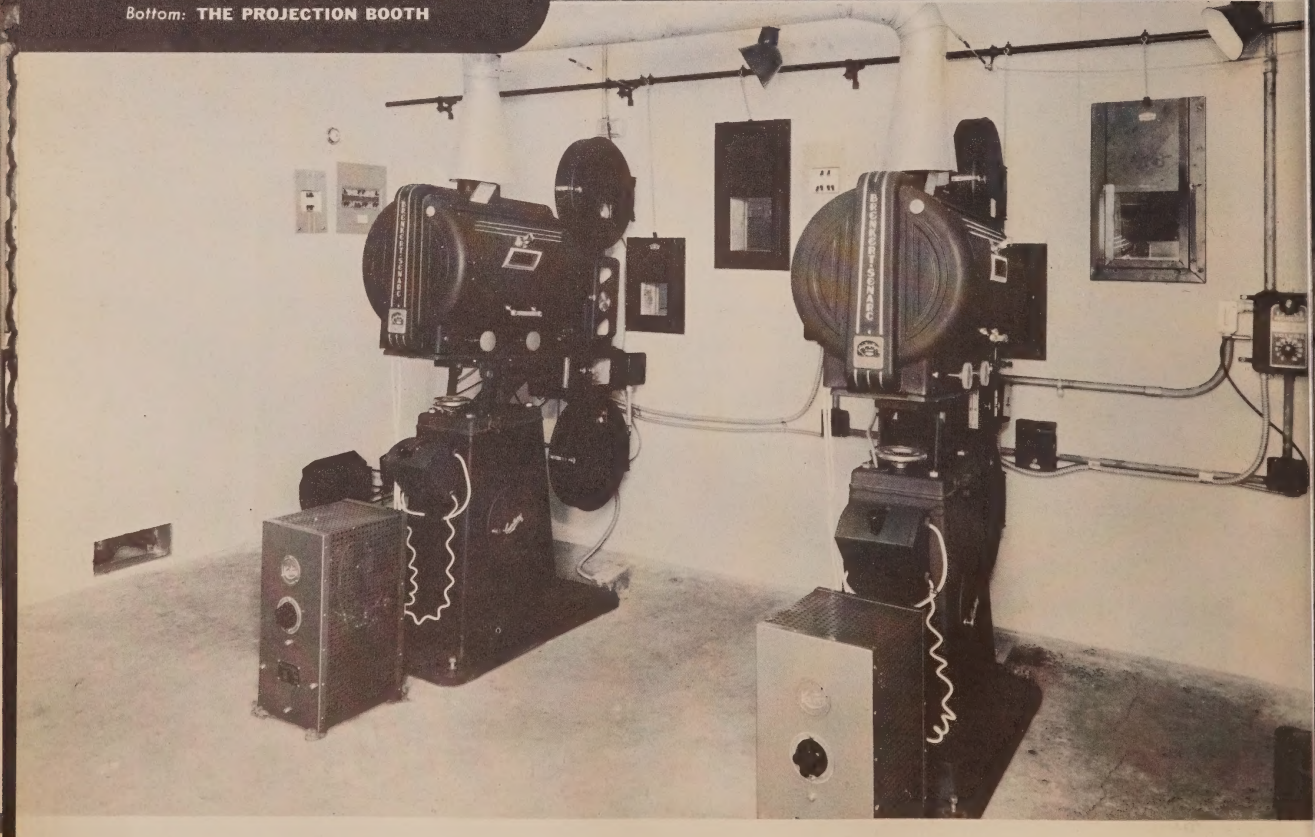
Sound—RCA High Fidelity. Manufactured by RCA Mfg. Co.

Supply Dealer—Superior Motion Picture Supply Co.

Ticket Register—General Register Corp.

Ticket Chopper—Manufactured by Golde Mfg. Co.

Top: **LOBBY IS ALSO STANDEE SPACE**
Bottom: **THE PROJECTION BOOTH**



NOR
SHOR
CATALOGING THE NEW IN DESIGN AND EQUIPMENT
28
1941
THE NEW
Nor Shor
DULUTH, MINN.

Above: **SIDEWALL JOINS PROSCENIUM**
Below: **THE FRONT GAINS ATTENTION**

REFERENCE FACTS:

NOR-SHOR THEATRE

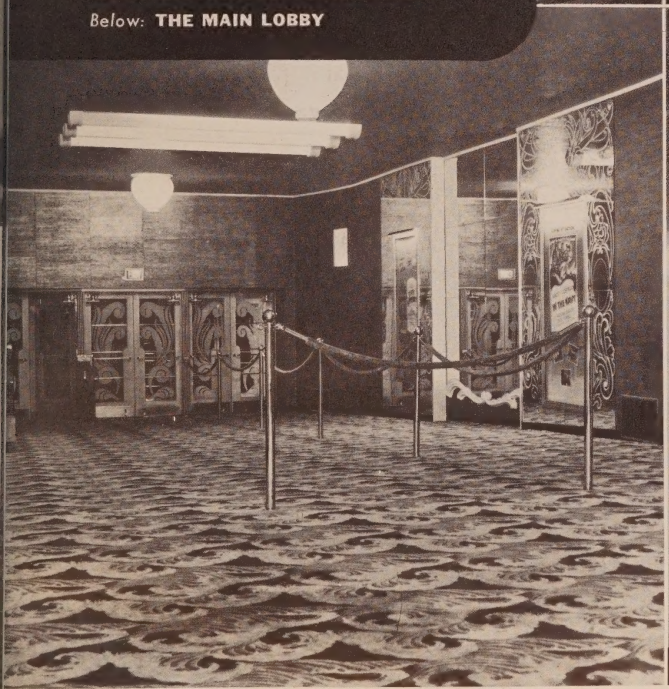
DULUTH, MINNESOTA

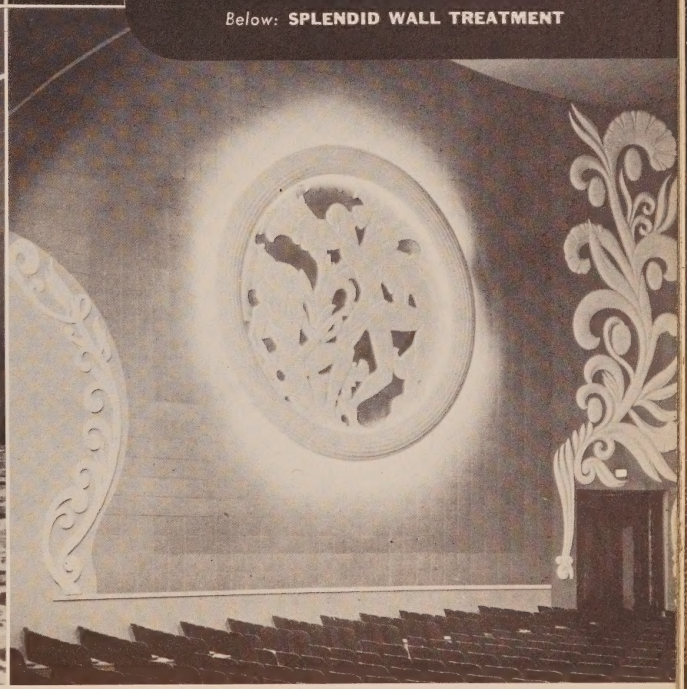
Owner: Minnesota Amusement Co.
Architect: Liebenberg and Kaplan
Size of Lot: 150' x 142' x 28'
Seating Capacity: 1300
Cost of Theatre: $140,000

Acoustical Material—Acousti Celotex. Manufactured by Celotex Corp.
Air Conditioning—Manufactured by U. S. Air Conditioning Co.
Carpets—Manufactured by Mohawk Carpet Mills, Inc.
Chairs—Manufactured by American Seating Co.
Coinchanger—Manufactured by Brandt Mfg. Co.
Curtain Controls and Track—Manufactured by Vallen, Inc.
Decorator—Salmio & Dahlberg.
Display Frames—Sealux. Manufactured by Universal Building Products Corp.
Draperies & Stage Curtains—Manufactured by National Theatre Supply Co.
Generators—Hertner Transverter. Manufactured by Hertner Electric Co.
Lighting Fixtures—Manufactured by Charles Anderson Co.
Projection Lamps—Brenkert. Manufactured by Brenkert Light Projection Co.
Projection Machines—Super Simplex. Manufactured by International Projector Corp.
Rubber Mats—Manufactured by T. B. Webb.
Screen—Walker plastic molded. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by Ettel & Franz.
Sign Letters—Manufactured by Wagner Sign Service, Inc.
Sound—Manufactured by Western Electric Co. Motiograph, Inc.
Supply Dealers—National Theatre Supply Co. and Frosch Theatre Supply Co. and Don Ruliffson Supply Co.
Ticket Register—General 4-Unit. Manufactured by General Register Corp.
Fabrics—Manufactured by Maharam Fabric Corp.

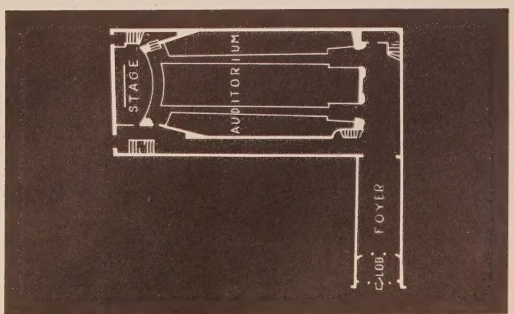
Above: **AUDITORIUM TOWARD REAR**
Below: **THE MAIN LOBBY**

Above: **THE NOVEL MILK BAR**
Below: **SPLENDID WALL TREATMENT**





The Nor-Shor, a first run in Duluth, Minnesota, is a truly fine example of modern theatre architecture. From the front, with its striking tower—through the auditorium, to the large stage—it seems to represent the epitome in comfort, modernism, and beauty. An attractive milk bar enhances the appearance of the lobby. The theatre is owned and operated by the Minnesota Amusement Company.



CATALOGING THE NEW IN DESIGN AND EQUIPMENT

29

1941

THE NEW

Lee

ROANOKE, VA.

The front and marquee of the Lee, located in a suburb of Roanoke, Virginia, are its most interesting features — setting it immediately apart from the general run of today's theatres. Built on a small budget by the Lehigh Development Corporation for operation by Dan Weinberg, this 800-seater is a good example of what can be done with limited funds and an unlimited imagination.

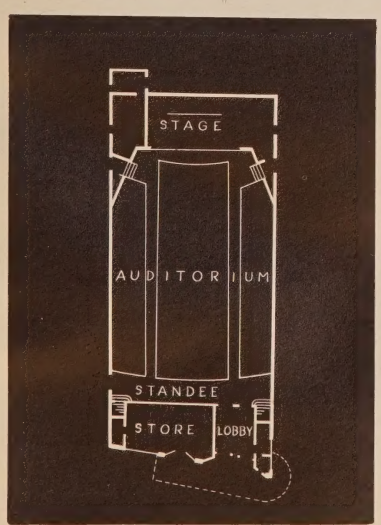
REFERENCE FACTS:

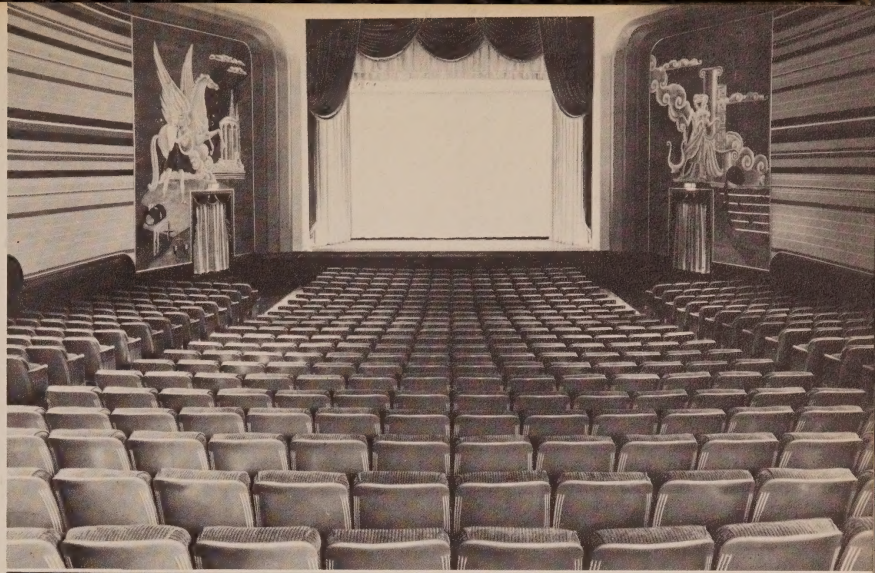
LEE THEATRE

ROANOKE, VIRGINIA

Owner: Lehigh Development Corporation
Architect: Eubank & Caldwell
Size of Lot: 100 x 300
Seating Capacity: 800
Cost of Theatre Building: $35,000.00
Cost of Equipment: $25,000.00
(Includes Air Conditioning)

Acoustical Material—Red Top insulation and cotton fabric over cinder block. Red Top insulation manufactured by U. S. Gypsum Co.
Air Conditioning—Frigidaire. Manufactured by General Motors Corporation.
Carpets—Gulistan. Manufactured by A. & M. Karagheusian, Inc.
Chairs—Bodiform. Manufactured by American Seating Company.
Changeovers—Brenkert. Manufactured by Brenkert Light Projection Co.
Coinchanger—Manufactured by Brandt Mfg. Co.
Curtain Controls & Tracks—ADC. Manufactured by Automatic Devices Company.
Decorator—Novelty Scenic Studios, Inc.
Display Frames—Manufactured by Lobby Display Frame Corp.
Draperies and Stage Curtains—Manufactured by Novelty Scenic Studios, Inc.
Film Cabinets—Neumade. Manufactured by Neumade Products Corp.
Generators—Robin-Imperial. Manufactured by J. E. Robin, Inc.
Lenses—Superlite. Manufactured by Projection Optics Co., Inc.
Lighting Fixtures—Manufactured by Kliegl Bros., and Vim-Lite, Inc.
Projection Lamps—Brenkert. Manufactured by Brenkert Light Projection Co.
Projection Machines—Brenkert. Manufactured by Brenkert Light Projection Co.
Rewinders—Manufactured by Neumade Products Corp.
Rubber Mats—Manufactured by Goodyear Rubber Co.
Screen—RCA Magic. Manufactured by RCA Mfg. Co.
Sign and Marquee—Fabricated and erected by Charlotte Sign Co.
Sign Letters—Manufactured by Wagner Sign Service, Inc.
Sound—Manufactured by RCA Mfg. Co.
Supply Dealer—Joe Hornstein, Inc.
Ticket Issuing Machine—Manufactured by General Register Corp.





Above: **AUDITORIUM VIEWS**
Below: **A MODERN LOBBY**

THE NEW

Village

HOUSTON, TEX

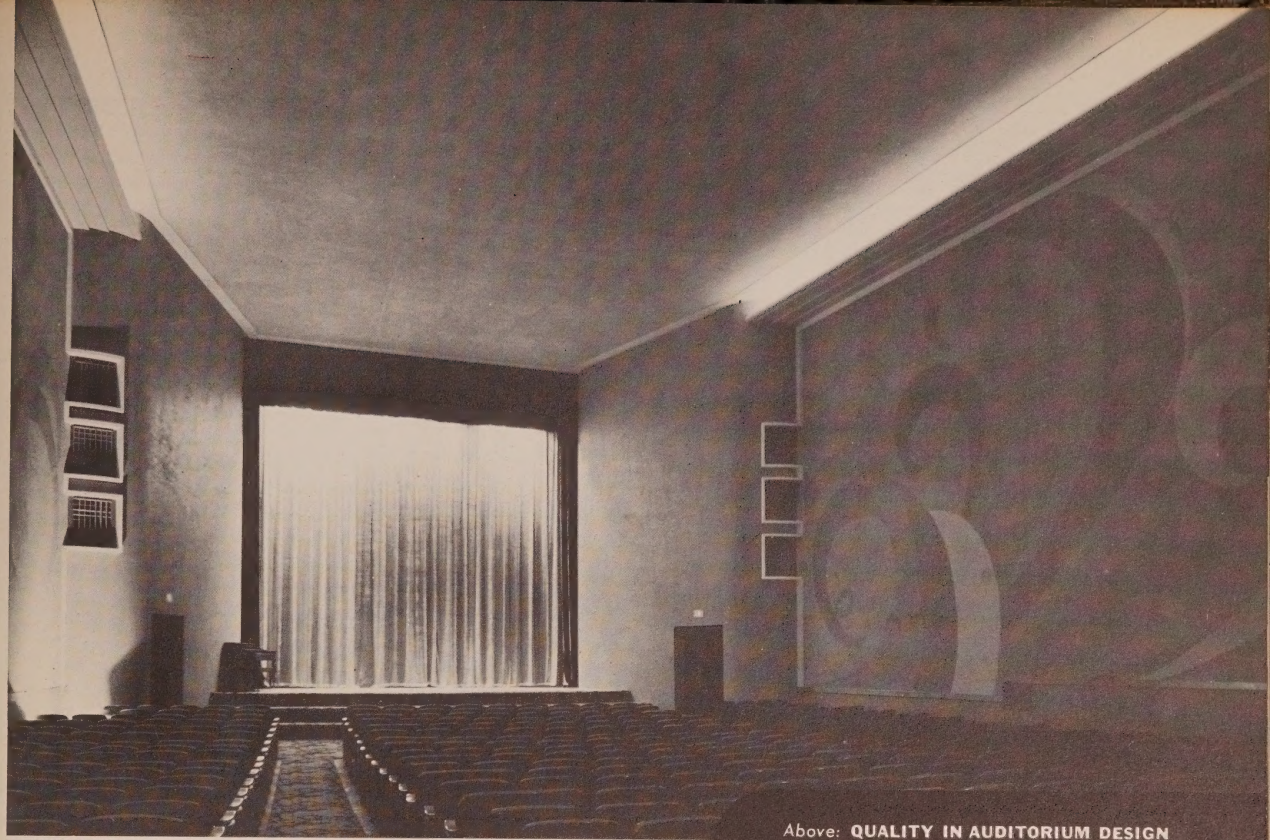
FIRST

700 to 1100 Seat Class

BRONZE PLAQUE WINNER

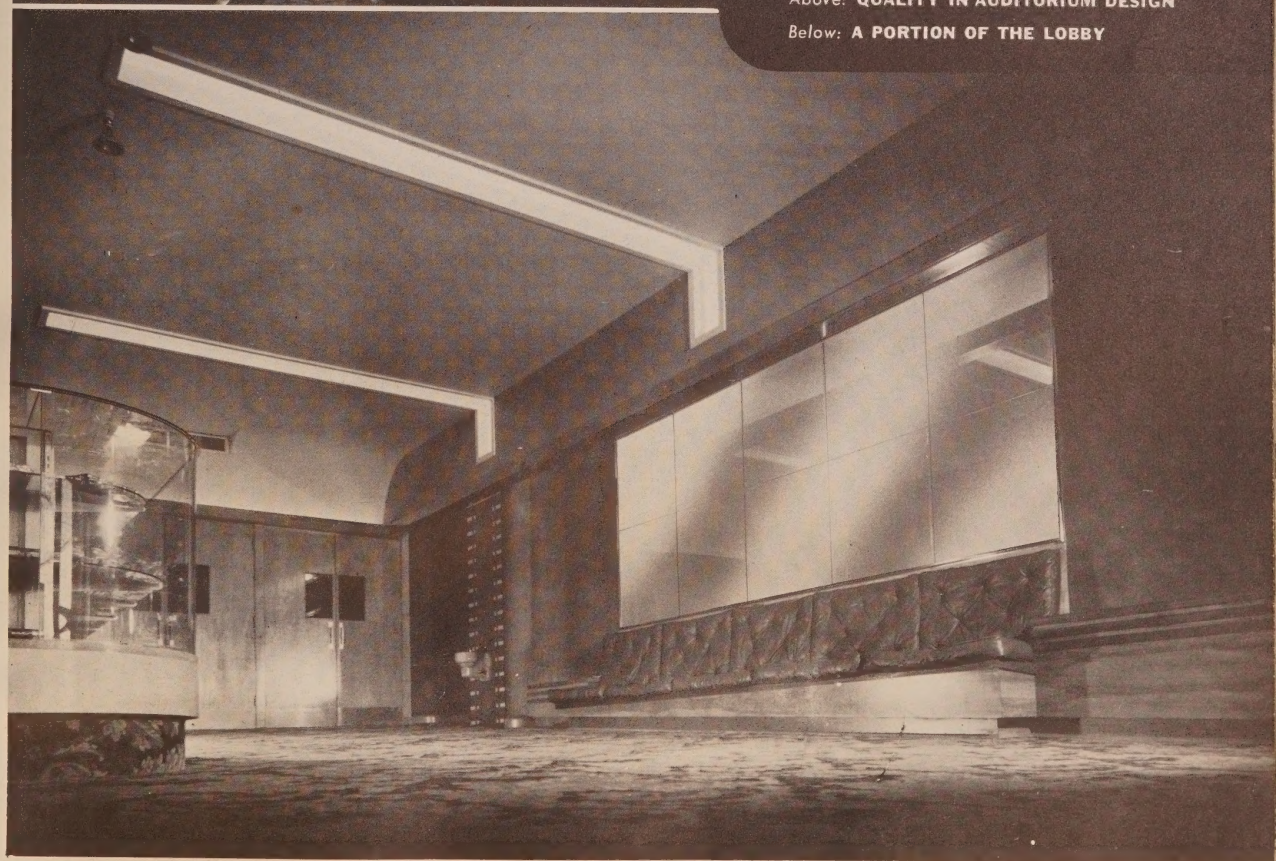
1941

Modernism—the modernism of sharp lines, and flat surfaces, and grey tones—has been used most effectively in the construction of the Village, Houston, Texas, pictured on these pages. The lobby is especially noteworthy, with its glass candy counter, large mirror, and long leather bench. The theatre is operated by Interstate Theatres, Inc., with a second-run policy.

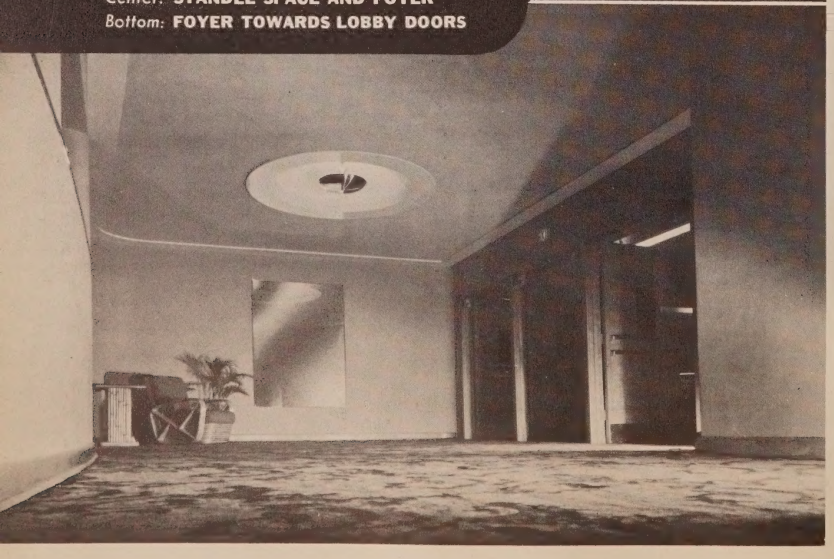


Above: **QUALITY IN AUDITORIUM DESIGN**

Below: **A PORTION OF THE LOBBY**



Top: **AUDITORIUM VIEW FROM BALCONY**
Center: **STANDEE SPACE AND FOYER**
Bottom: **FOYER TOWARDS LOBBY DOORS**



REFERENCE FACTS:

VILLAGE THEATRE

HOUSTON, TEXAS

Owner: Interstate Theatres, Inc.

Architect: MacKie and Kamrath

Size of Lot: 81 x 225

Seating Capacity: 960

Cost of Theatre: $54,000

Acoustical Material—Kalite acoustical plaster. Manufactured by Certain-Teed Products Corp.

Air Conditioning—Manufactured by Frick Co.

Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.

Chairs—Manufactured by International Seat Corp.

Changeovers—Brenkert. Manufactured by Brenkert Light Projection Co.

Coinchanger—Coin-O-Meter. Manufactured by Universal Stamping & Mfg. Co.

Curtain Controls and Tracks—Vallen. Manufactured by Vallen, Inc.

Decorator—Eugene Gilboe.

Draperies and Stage Curtains—Manufactured by Houston Scenic Studios.

Film Cabinets—Manufactured by Ed Wolk.

Generators—Roth. Manufactured by Century Electric Co.

Lenses—Manufactured by Bausch-Lomb Optical Co.

Projection Lamps—Brenkert Enarc. Manufactured by Brenkert Light Projection Co.

Projection Machines—Brenkert Type BX-80. Manufactured by Brenkert Light Projection Co.

Rewinders—Manufactured by Ed Wolk.

Screen—Dalite. Manufactured by Dalite Screen Company.

Sign and Marquee—Fabricated and erected by Texas Neon Sign Co.

Sign Letters—Manufactured by Adler Silhouette Letter Co.

Sound—RCA. Manufactured by RCA Mfg. Co.

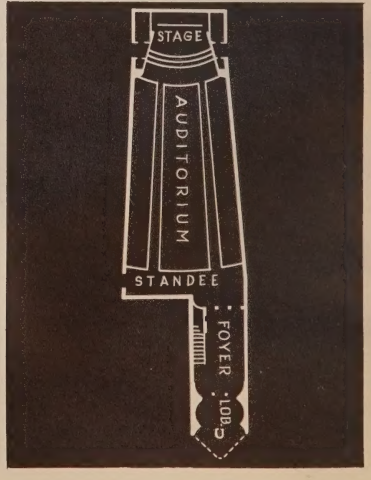
Supply Dealer—Southwestern Theatre Equipment Co.

Ticket Issuing Machine—Manufactured by General Register Corp.

Ticket Chopper—Manufactured by Neumade Products Corp.

Vending Machines—Manley Popcorn. Manufactured by Manley, Inc.

Wall Fabrics—Fabrikona. Manufactured by E. I. du Pont de Nemours & Co.



"Modernism with a suggestion of the tropics" would be the best name for the architectural style used by John and Drew Eberson in designing the Calvin Operating Corporation's new Daytona, Daytona Beach, Florida. Outstanding are the front, which somehow seems perfectly "right" for a Florida house, and the entrance foyer, with its tiled floor and bamboo trimmed walls. A 1000-seater, the Daytona is a first-run theatre, commanding the highest admission price in the city.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

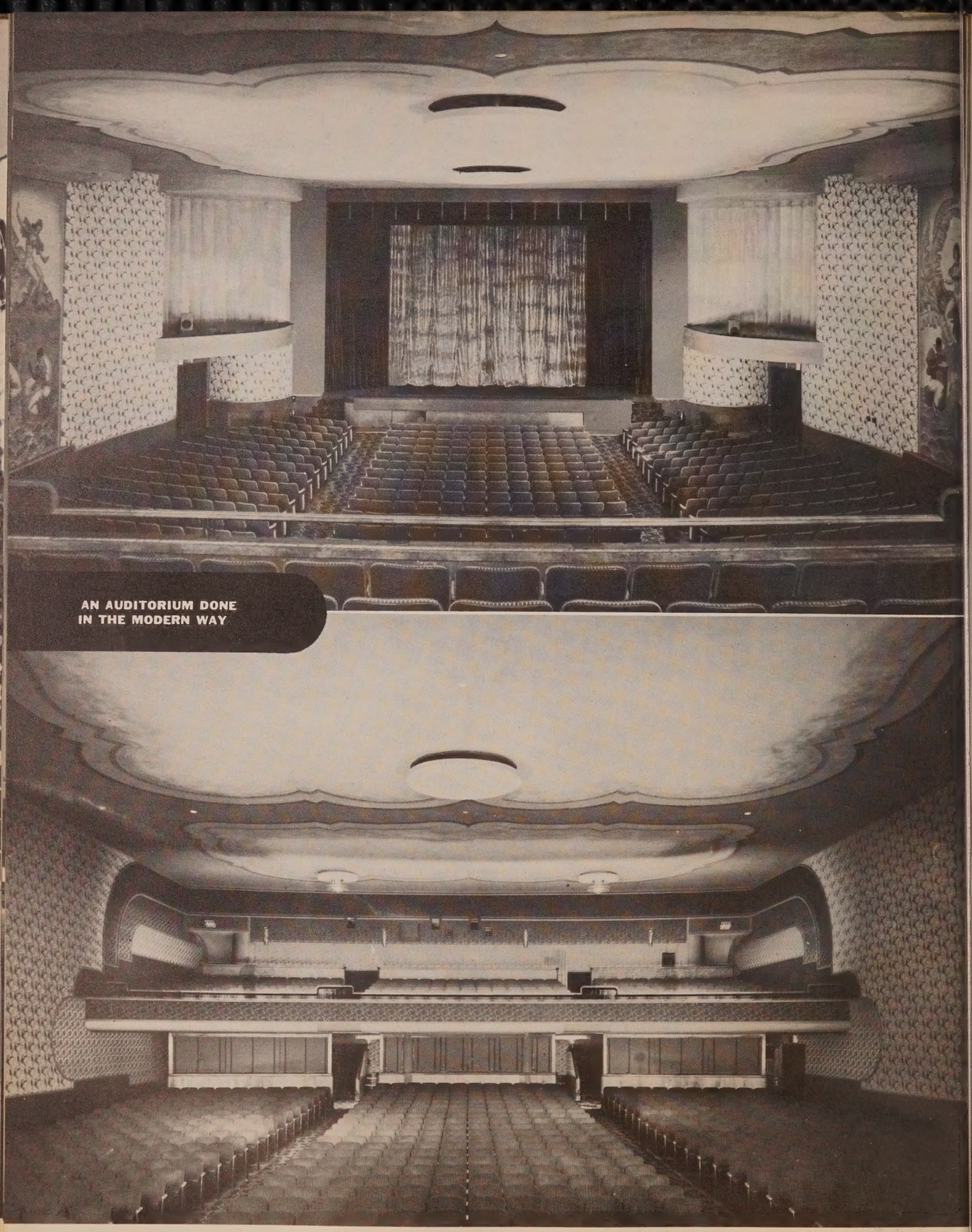
31

• 1941 •

THE NEW

Daytona

DAYTONA BEACH, FLA.



AN AUDITORIUM DONE
IN THE MODERN WAY

REFERENCE FACTS:

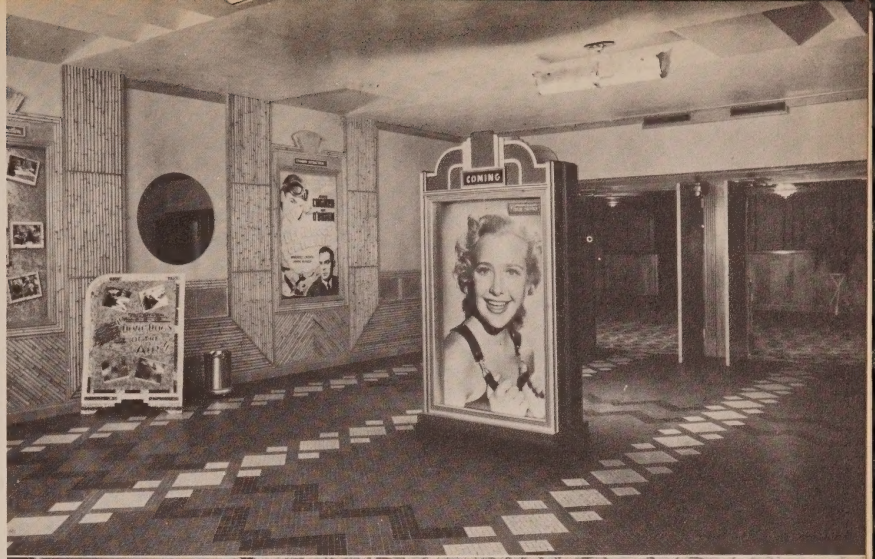
DAYTONA THEATRE

DAYTONA BEACH, FLORIDA

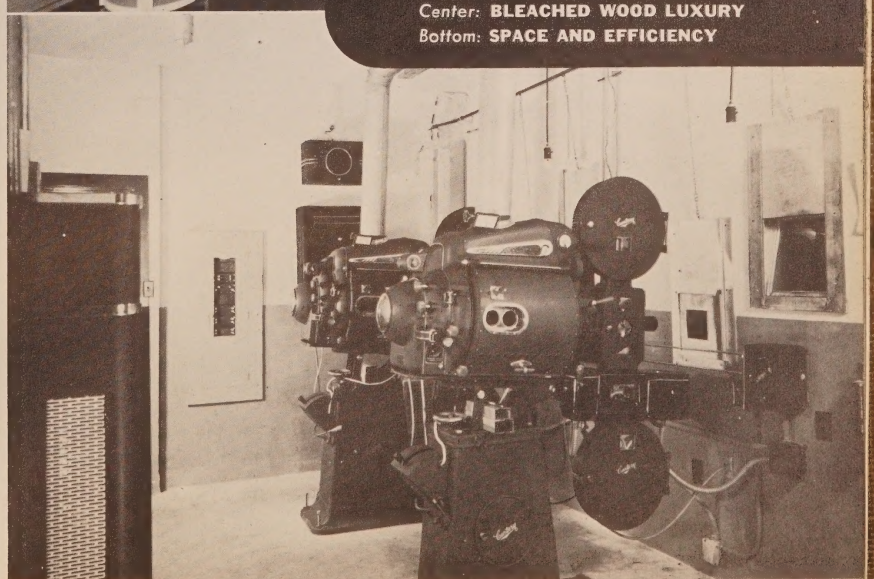
Owner: Calvin Operating Corp.
Architects: John and Drew Eberson

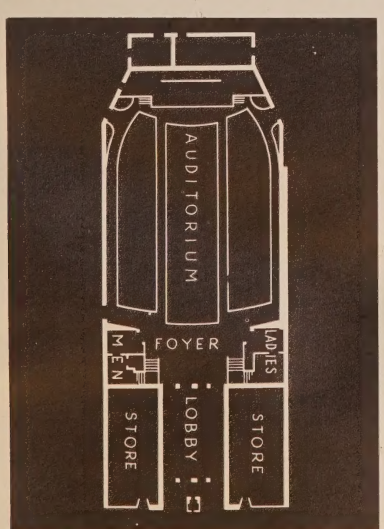
Size of Lot: 72 x 130
Seating Capacity: 1000
Cost of Theatre: $88,000

Acoustical Material—Fabric over rockwool. Rockwool manufactured by George R. Hall & Sons, Inc.
Air Conditioning—Manufactured by Fairbanks Morse & Co.
Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Manufactured by Ideal Seating Co.
Changeovers—Manufactured by Thide Mfg. Co.
Coinchanger—Manufactured by Johnson Fare Box Co.
Curtain Controls and Track—Manufactured by Vallen, Inc.
Decorator—Battisti Decorating Co.
Draperies and Stage Curtains—Manufactured by Charles Kenney Studios, Inc.
Film Cabinets—Manufactured by Neumade Products Corp.
Generators—Robin Imperial. Manufactured by J. E. Robin, Inc.
Lenses—Manufactured by Projection Optics Co., Inc.
Lighting Fixtures—Manufactured by Charles J. Winston & Co.
Projection Lamps—Ashcraft Suprex. Manufactured by C. S. Ashcraft Mfg. Co.
Projection Machines—Manufactured by Century Projector Co.
Rewinds—Manufactured by Golde Mfg. Co.
Rubber Mats—Manufactured by Puritan Rubber Co.
Screen—RCA Magic. Manufactured by RCA Mfg. Co.
Sign and Marquee—Fabricated and erected by Continental Sign Co.
Sign Letters—Manufactured by Adler Silhouette Letter Co.
Sound—RCA. Manufactured by RCA Mfg. Co.
Supply Dealer—Capitol Motion Picture Supply Co., New York, N. Y.
Ticket Register—Manufactured by General Register Corp.
Ticket Chopper—Manufactured by Moses Beaudoin.
Vacuum Cleaner—Manufactured by General Electric Co.
Wall Fabrics—Manufactured by Dazian's, Inc.



Top: **TILE FLOOR AND BAMBOO**
Center: **BLEACHED WOOD LUXURY**
Bottom: **SPACE AND EFFICIENCY**





Colony
SPENCER TRACY & MICKEY ROONEY
"MEN OF BOYS TOWN"
THE NEW
Colony
LIVINGSTON, N. J.
CATALOGING THE NEW IN DESIGN AND EQUIPMENT
32
1941

During the early summer of 1941, the residents of Livingston, New Jersey, saw the opening in their town of one of the finest theatres in the area—the new Colony, designed by John and Drew Eberson for the Robud Corporation. The house embodies the latest developments in theatre architecture, with a Colonial motif which harmonizes with the general planning of the community. Its seating capacity is 600.

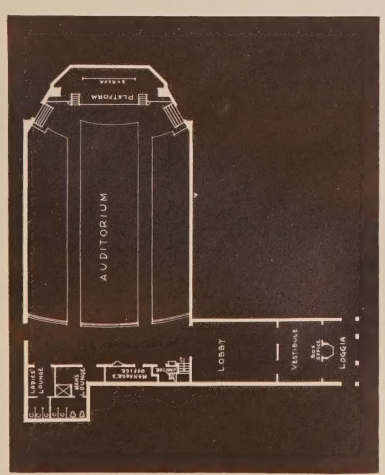
REFERENCE FACTS:

COLONY THEATRE
LIVINGSTON, NEW JERSEY

Owner: Robud Corp.
Architects: John and Drew Eberson

Size of Lot: 129 x 139
Seating Capacity: 600
Cost of Theatre: $85,000

Acoustical Material—Fabric over rockwool. Manufactured by Geo. R. Hall & Sons.
Air Conditioning—Manufactured by Typhoon Air Conditioning Co.
Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Manufactured by Ideal Seating Co.
Curtain Controls and Track—Manufactured by Vallen, Inc.
Decorator—Rambusch Decorating Co.
Draperies and Stage Curtains—Manufactured by Charles Kenney Studios, Inc.
Film Cabinets—Manufactured by Neumade Products Corp.
Generator—Robin Imperial. Manufactured by J. E. Robin, Inc.
Lenses—Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Manufactured by Rambusch Decorating Co.
Projection Lamps—Ashcraft. Manufactured by C. S. Ashcraft Mfg. Co.
Projection Machines—Simplex. Manufactured by International Projector Corp.
Rewinds—Manufactured by Neumade Products Corp.
Rubber Mats—Manufactured by Hamilton Rubber Co.
Screen—RCA Magic. Manufactured by RCA Mfg. Co.
Sign and Marquee—Fabricated and erected by Continental Sign Co.
Sign Letters—Manufactured by Wagner Sign Service, Inc.
Sound—RCA. Manufactured by RCA Mfg. Co.
Supply Dealer—Continental Theatre Accessories, Inc.
Ticket Register—Manufactured by General Register Corp.
Wall Fabrics—Manufactured by Dazian's, Inc.



Top: **COLONIAL DESIGN IN AUDITORIUM**
Bottom: **A NEAT CARPETED LOBBY**

THE NEW
Central
PASSAIC. N. J.
CATALOGING THE NEW IN DESIGN AND EQUIPMENT
33
1941
CENTRAL
IN PERSON
JACK TEAGARDEN ORCH
MARY
SMALL
THREE SAILORS
DONALD
PATSY O'CONNOR ROY DAVIS
KITTY KA
LEN CLINT GARVIN AND OTHERS
NOW IN PERSON JACK TEAGARDEN ORCH
MARY SMALL THREE SAILORS
DONALD & PATSY O'CONNOR ROY DAVIS
KITTY KALLEN CLINT GARVIN / THERS
Teagarden
MARY SMALL THE 3 SAILORS
O'CONNOR ROY DAVIS

SPACIOUS AUDITORIUM AND
WELL PLANNED BALCONY

Top: **EXTERIOR IN DAYTIME**

Bottom: **MODERNLY APPOINTED LOUNGE**

Contrasting sharply with other theatres pictured here, the new Central, Passaic, New Jersey, is a 2400-seat downtown de-luxer designed by architects John and Drew Eberson for the Center Amusement Company.

REFERENCE FACTS:

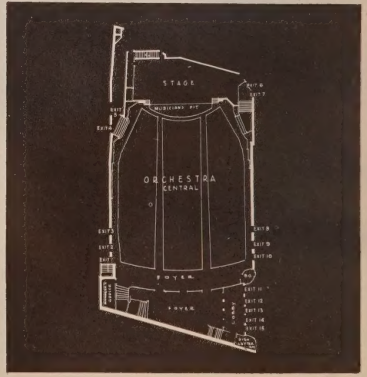
CENTRAL THEATRE

PASSAIC, NEW JERSEY

Owner: Center Amusement Co.
Architects: John and Drew Eberson

Size of Lot: 106 x 224
Seating Capacity: 2400
Cost of Theatre: $300,000

Acoustical Material—Rockwool on metal lath. Rockwool manufactured by Geo. R. Hall & Sons.
Air Conditioning—Carrier refrigeration. Manufactured by Carrier Corp.
Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—American bodiform. Manufactured by American Seating Co.
Changeovers—Thide automatic. Manufactured by Thide Mfg. Co.
Coinchanger—Coinometer. Manufactured by Ampro Corp.
Curtain Controls and Track—Manufactured by J. R. Clancy, Inc.
Decorator—Maragiotti Studios.
Display Frames—Manufactured by Stanley Frame Co.
Draperies and Stage Curtains—Manufactured by Novelty Scenic Studios, Inc.
Drapery Materials—Manufactured by Maharam Fabric Corp.
Film Cabinets—Manufactured by Neumade Products Co.
Furniture—Manufactured by M. Singer & Sons.
Generators—Hertner. Manufactured by Hertner Electric Co.
Lenses—Bausch & Lomb. Manufactured by Bausch & Lomb Optical Co.
Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.
Projection Machines—Simplex E-7. Manufactured by International Projector Corp.
Rewinds—Simplex and Goldberg Automatic. Simplex manufactured by International Projector Corp. Goldberg Automatic manufactured by Goldberg Bros.
Rubber Mats—Manufactured by U. S. Rubber Co. Distributed by Lawrich Sales Co.
Screen—Walker Plastic. Manufactured by Walker American Corp.
Sign and Marquee—Fabricated and erected by Monroe Sign Co.
Sign Letters—Manufactured by Wagner Sign Service, Inc.
Sound—Simplex 4 Star. Manufactured by International Projection Corp.
Supply Dealer—National Theatre Supply Co.
Ticket Register—Automaticket. Manufactured by General Register Co.
Ticket Chopper—Manufactured by Newman Bros., Inc.



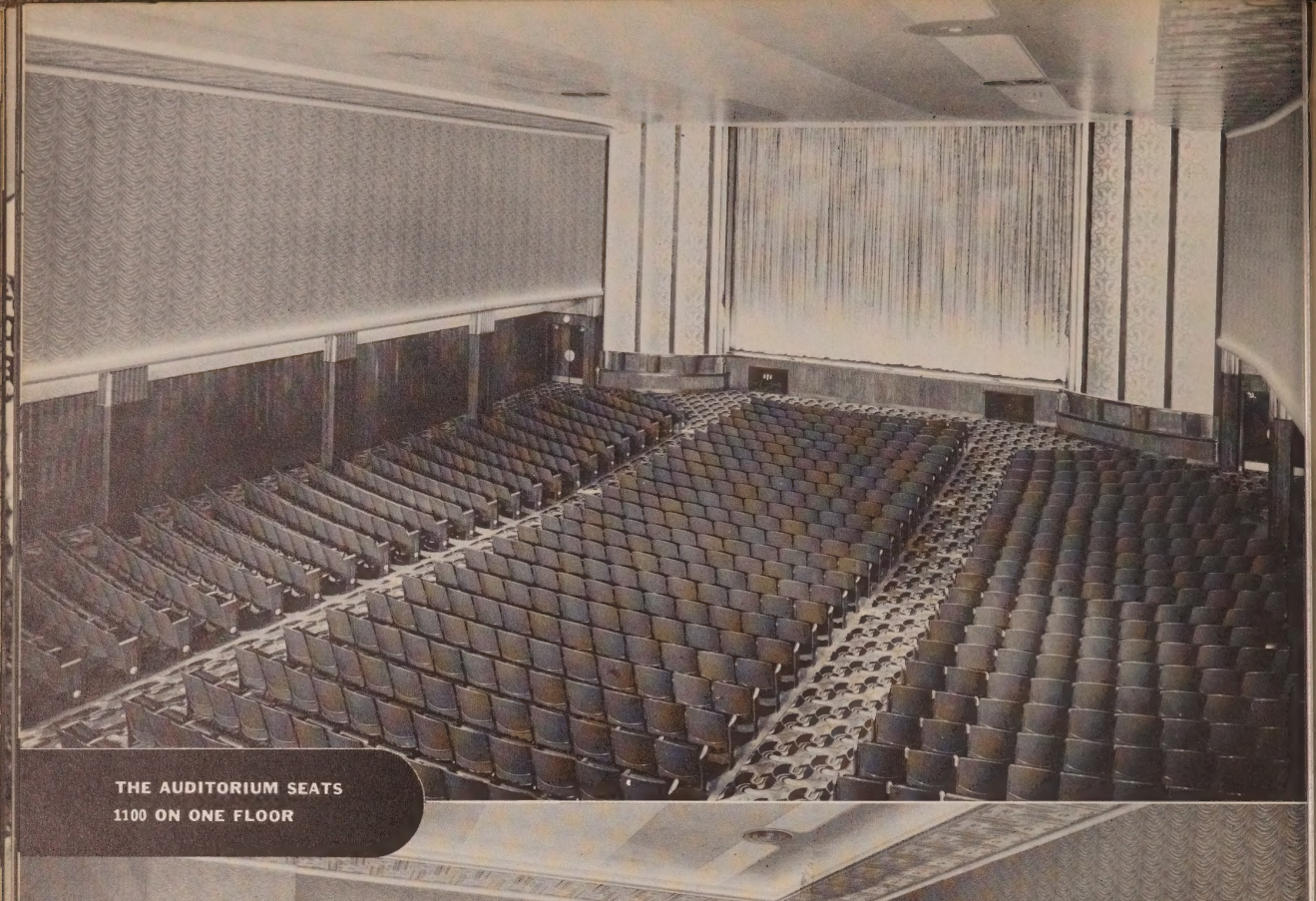
The Uptown Amusement Company is the owner of this deluxer added during 1941 to the ever increasing number of modern theatres in Baltimore, Maryland. Situated in the heart of the Pimlico residential shopping area, the policy calls for two changes weekly with first run neighborhood films. Regular adult admission is 33 cents, with 44 cents being charged for admission to private boxes.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 34

THE NEW

Uptown

BALTIMORE, MD.



THE AUDITORIUM SEATS
1100 ON ONE FLOOR

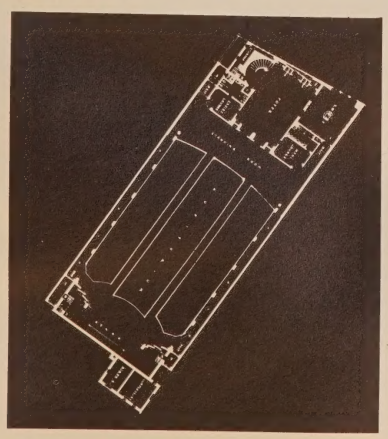
REFERENCE FACTS:

UPTOWN THEATRE

BALTIMORE, MARYLAND

Owner: Uptown Amusement Corp.
Architect: John F. Eyring
Size of Parking Lot: 90 x 260
Size of Theatre Lot: 81 x 240
Seating Capacity: 1100
Cost of Theatre: $200,000

Acoustical Material—Gimco rockwool covered with damask. Gimco manufactured by General Insulating & Mfg. Co.
Air Conditioning—Refrigeration equipment manufactured by Frick Co. National Fans and Blowers.
Carpets—National Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Manufactured by Heywood-Wakefield Co.
Changeovers—Weaver. Manufactured by Weaver Mfg. Co.
Coinchanger—Brandt.Manufactured by Brandt Automatic Cashier Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Paramount Decorating Co.
Display Frames—Manufactured by Kawneer Co. and Universal Building Products Corp.
Drapery Materials—Manufactured by Maharam Fabric Corp.
Draperies and Stage Curtains—Manufactured by Paramount Decorating Co.
Drinking Fountains—Voigt. Manufactured by Voigt Co.
Film Cabinets—Neutype. Manufactured by Neumade Products Co.
Furniture—Manufactured by Heywood-Wakefield Co.
Generators—Manufactured by Hertner Electric Co.
Lenses—Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Manufactured by Rambusch, Inc.
Projection Lamps—Manufactured by Brenkert Light Projection Co.
Projection Machines—Manufactured by Brenkert Light Projection Co.
Rewinders—Goldberg Automatic. Manufactured by Goldberg Bros.
Rubber Mats—Manufactured by U. S. Rubber Co.
Screen—Walker. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by Phillips Neon Sign Co.
Sign Letters—Manufactured by Wagner Sign Service, Inc.
Sound—RCA. Manufactured by RCA Mfg. Co.
Supply Dealer—National Theatre Supply Co.
Ticket Issuing Machine—Timco. Manufactured by Ticket Issuing Machine Corp.
Vending Machines—Candy. Manufactured by Berlo Vending Machine Co.
Wall Fabrics—Manufactured by A. Theodore Abbott & Co.



Top: **SMARTLY APPOINTED FOYER**
Center: **VIEW ROOMS FOR PRIVATE PARTIES**
Bottom: **AMPLE STANDEE AREA**

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

35

1941

THE NEW

Bowie

BROWNWOOD, TEXAS

Interstate Circuit, Inc., of Texas assigned the architectural firm of Pettigrew and Worley to the task of designing this house for Brownwood, Texas (Population: 14,000). With the thousands of soldiers being assigned to Camp Bowie, located just outside the town limits, Interstate realized the inadequacy of their one house in the town, the Lyric, and made hurried plans to erect the modern showplace shown here.

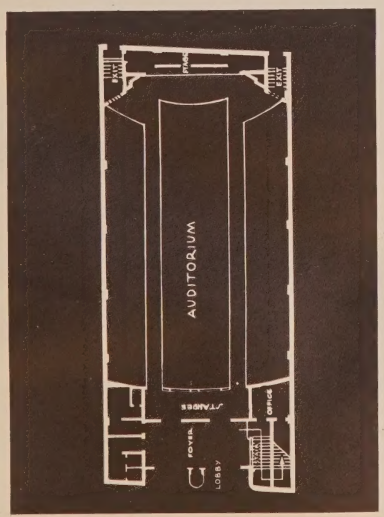
REFERENCE FACTS:

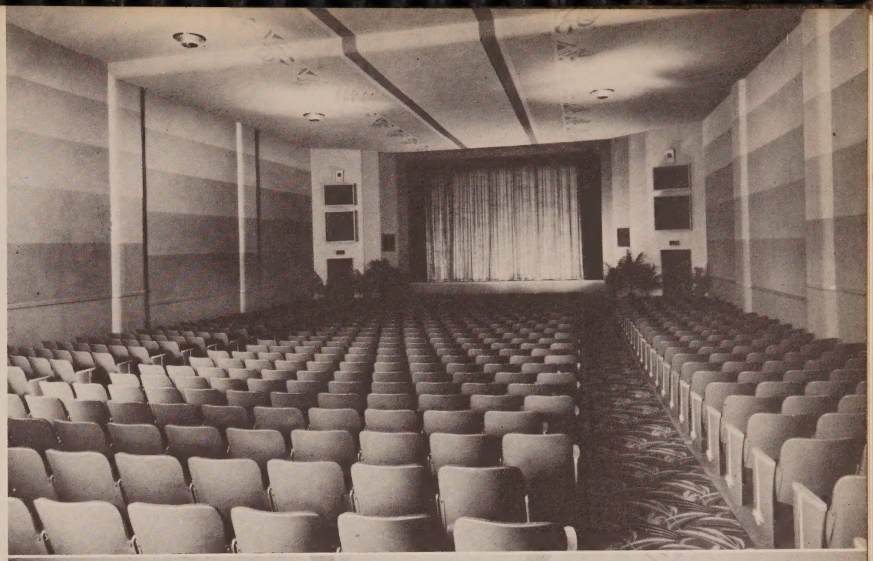
BOWIE THEATRE
BROWNWOOD, TEXAS

Owner: Interstate Circuit, Inc.
Architect: Pettigrew & Worley

Size of Lot: 50 x 120
Seating Capacity: 849
Cost of Theatre: Not Definitely Known

Acoustical Treatment—Kalite acoustical plaster. Manufactured by Certain-Teed Products Corp.
Air Conditioning—Washed air system.
Carpets—Crestwood. Manufactured by Alexander Smith & Sons, Inc.
Chairs—Manufactured by American Seating Co.
Changeovers—Theid. Manufactured by Dowser Mfg. Co.
Coinchanger—Manufactured by Brandt Automatic Cashier Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Eugene Gilboe.
Display Frames—Manufactured by Sullenberger Mfg. Co.
Film Cabinets—Manufactured by Ed Wolk.
Furniture—Manufactured by Royal Metal Manufacturing Co.
Lenses—Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Manufactured by Meletio Electrical Supply Co.
Projection Lamps—Ashcraft. Manufactured by C. S. Ashcraft Mfg. Co.
Projection Machines—Simplex. Manufactured by International Projector Corp.
Rectifiers—Baldor. Manufactured by Baldor Electric Co.
Rewinders—Manufactured by Ed Wolk.
Screen—Walker Plastic. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by Texlite, Inc.
Sign Letters—Manufactured by Adler Silhouette Letter Co.
Sound—RCA. Manufactured by RCA Mfg. Co.
Supply Dealer—Southwestern Theatre Equipment Co.
Ticket Chopper—Manufactured by Nu-made Products Corp.
Ticket Register—Manufactured by General Register Corp.
Stage Drapes and Curtains—Manufactured by Houston Scenic Studios.
Vending Machines—Popcorn. Manufactured by Manley, Inc.





Top: **A REFINED ATMOSPHERE**
Center: **STAGGERED SEATING**
Bottom: **TO THE BALCONY**

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

36

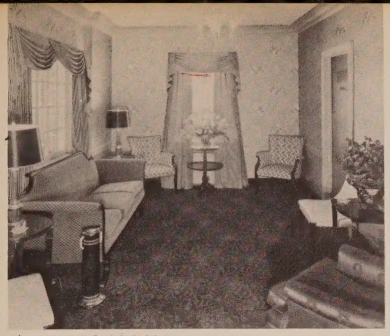
1941

THE NEW

Regent

COLONIAL HEIGHTS, VA.

Architect A. O. Budina, Richmond, Virginia, can now add another to the long string of Colonial theatres designed by him in recent years. This one located on U .S. Route 1 in Colonial Heights, Virginia, draws its patrons from the 4,500 working class patrons who populate the area. Its design carries out the traditions of the old South and sets it apart from the so-called "modern" architecture along the highway. Neighborhood Theatre, Inc., operates the house as a subsequent run.



TO THE LADIES

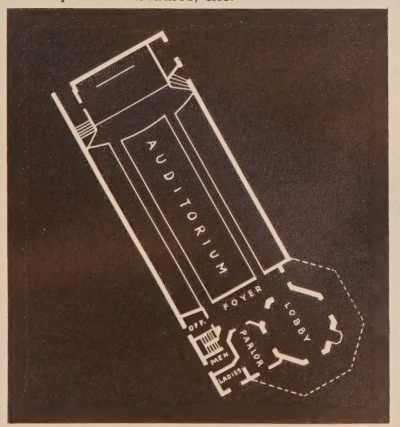
REFERENCE FACTS:

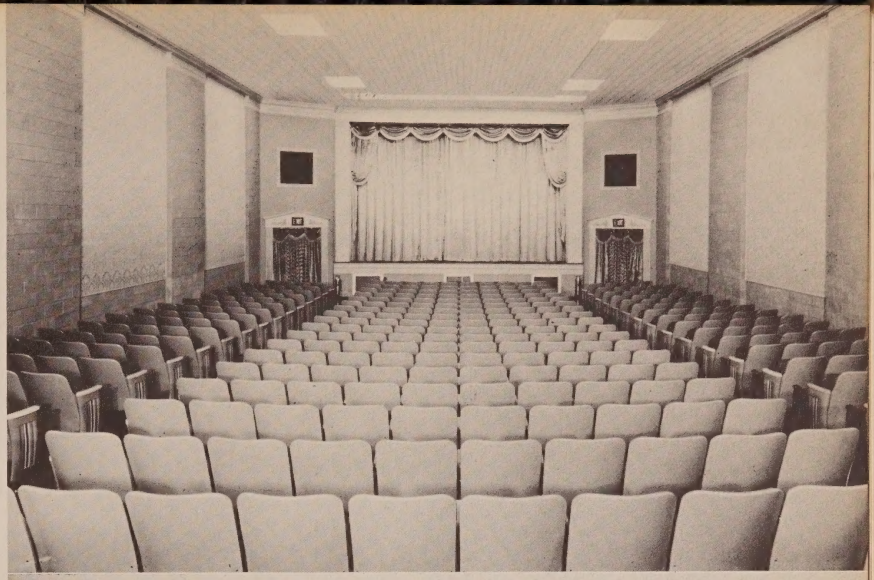
REGENT THEATRE

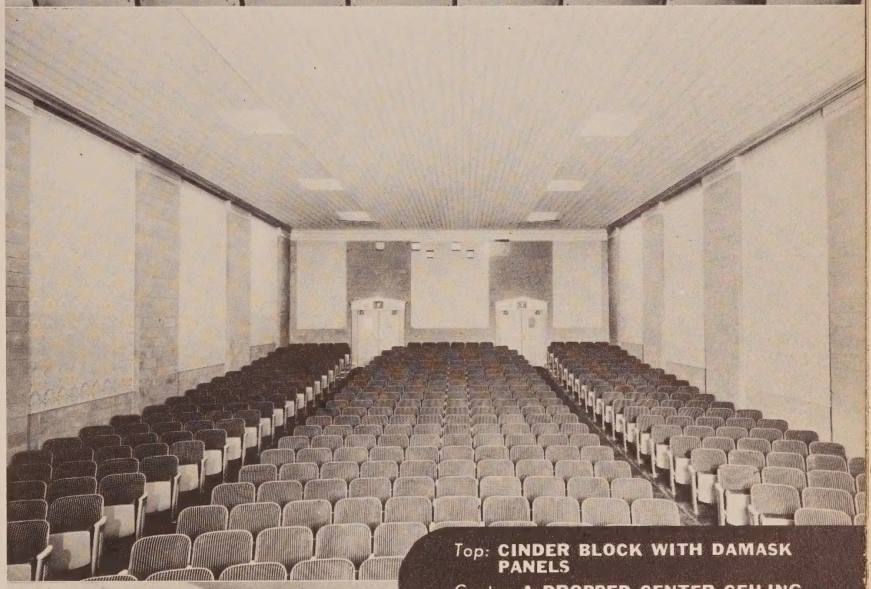
COLONIAL HEIGHTS, VA.

Owner: Colonial Gardens, Inc.
Architect: A. O. Budina
Size of Lot: 100 x 220
Seating Capacity: 425
Cost of Theatre Exclusive of Equipment: $40,000. Cost of Equipment: $12,000

Acoustical Treatment—Cinder block and fabric panels.
Air Conditioning—Manufactured by U. S. Air Conditioning Co.
Carpets—Wilton. Manufactured by Masland-Wilton Mills.
Chairs—Manufactured by Ideal Seating Co.
Changeovers—Weaver. Manufactured by Weaver Mfg. Co.
Coinchanger—Mfd. by Johnson Fare Box Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Falconer & Wyn.
Display Frames—Sealuxe. Manufactured by Universal Building Products Corp.
Film Cabinets—Neumade Products Corp.
Generators—Mfd. by the Hertner Electric Co.
Lenses—Bausch & Lomb Cinephor. Manufactured by the Bausch & Lomb Optical Co.
Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.
Projection Machines—Super Simplex. Manufactured by the International Projector Corp.
Rewinders—Neumade and Goldberg. Neumade manufactured by the Neumade Products Corp. and Goldberg manufactured by Goldberg Bros.
Rubber Mats—Mfd. by Hamilton Rubber Co.
Screen—Mfd. by Walker-American Corp.
Sign and Marquee—Fabricated and erected by the Talley Neon Sign Co.
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.
Sound—Simplex 4-Star. Manufactured by the International Projector Corp.
Supply Dealer—National Theatre Supply Co.
Ticket Issuing Machine—Timco. Manufactured by the Ticket Issuing Machine Co.
Ticket Chopper—Goldberg. Manufactured by Goldberg Bros.
Vending Machines—Berlo Vending Co.
Wall Fabrics—Furnished and installed by Novelty Scenic Studios, Inc.







Top: **CINDER BLOCK WITH DAMASK PANELS**
Center: **A DROPPED CENTER CEILING**
Bottom: **COLONIAL WALL PAPERED FOYER**

THE NEW

State

ATLANTA, TEXAS

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

37

* 1941 *

Tri-State Theatres of Atlanta, Texas, located this house, the most recent addition to their circuit, in their home town. Though not elaborate, this new house of brick construction embodies many of the desired comforts at a low construction cost. Architect Lloyd Epperson was ably assisted in designing the house by Tri-State general manager B. R. McLendon.

REFERENCE FACTS:

STATE THEATRE

ATLANTA, TEXAS

Owner: B. R. McLendon

Architect: Lloyd Epperson

Seating Capacity: 728

Size of Lot: 41 x 130

Cost of Theatre: $36,700

Acoustical Material—Low density acoustical board. Manufactured by U. S. Gypsum Co.

Air Conditioning—Manufactured by Great National Air Conditioning Corp.

Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.

Chairs—Irwin Clipper. Manufactured by Irwin Seating Co.

Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.

Decorator—Harry Larsen.

Display Frames—Alumilited Sealuxe. Manufactured by Universal Building Products Corp.

Film Cabinets—Steel. Manufactured by Neumade Products Corp.

Generators—Manufactured by Strong Electric Corp.

Lenses—Super Cinephor F:2. Manufactured by Bausch & Lomb Optical Co.

Projection Lamps—Simplex High. Manufactured by Strong Electric Corp.

Projection Machines—Super Simplex. Manufactured by International Projector Corp.

Rewinders—Goldberg. Manufactured by Goldberg Bros.

Screen—Walker-Plastic. Manufactured by Walker-American Corp.

Sign and Marquee—Fabricated and erected by Texlite, Inc.

Sign Letters—Manufactured by Moore-Neal Advertising Co.

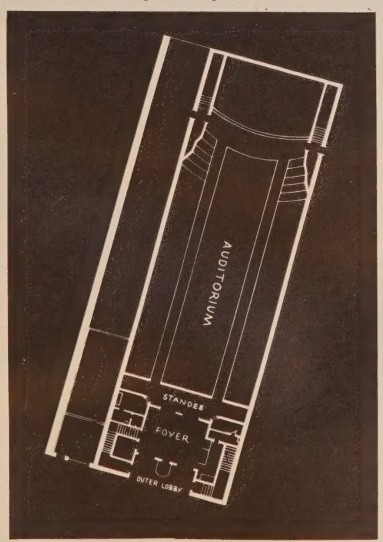
Sound—Simplex 4-Star. Manufactured by International Projector Corp.

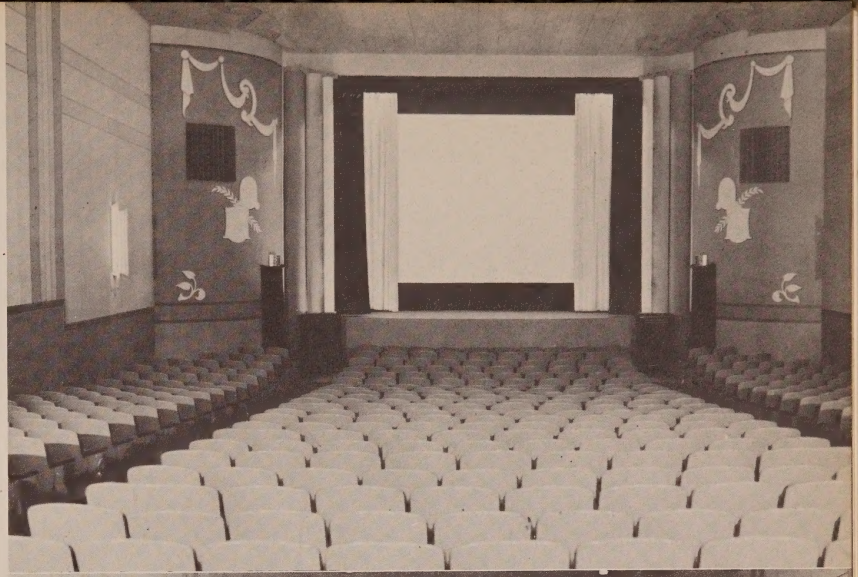
Supply Dealer—National Theatre Supply Co.

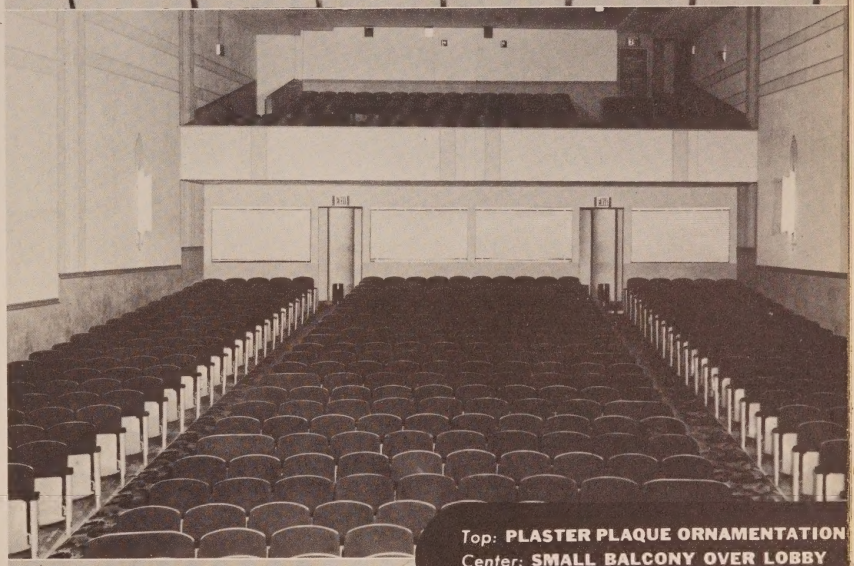
Ticket Issuing Machine—Manufactured by General Register Corp.

Ticket Chopper—Manufactured by Goldberg Bros.

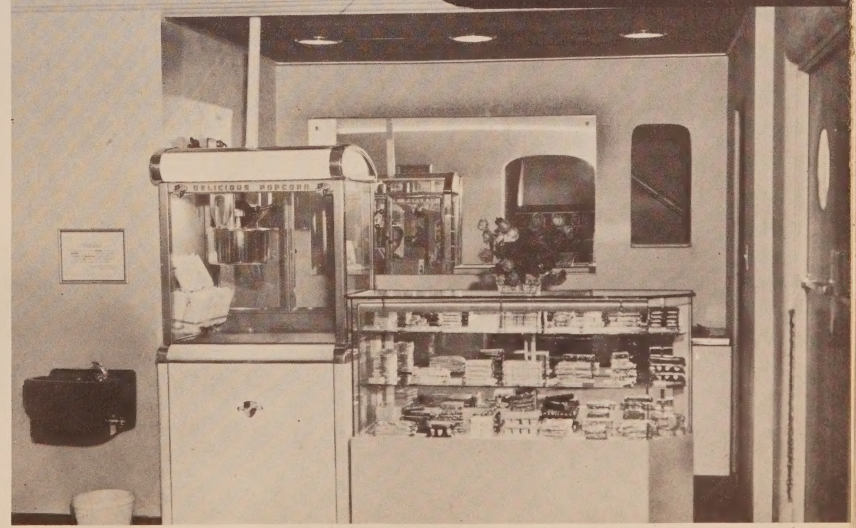
Vending Machines—Manley popcorn machine. Manufactured by Manley, Inc.







Top: **PLASTER PLAQUE ORNAMENTATION**
Center: **SMALL BALCONY OVER LOBBY**
Bottom: **PATRON SERVICE FOR PROFITS**



CATALOGING THE NEW IN DESIGN AND EQUIPMENT

38

• 1941 •

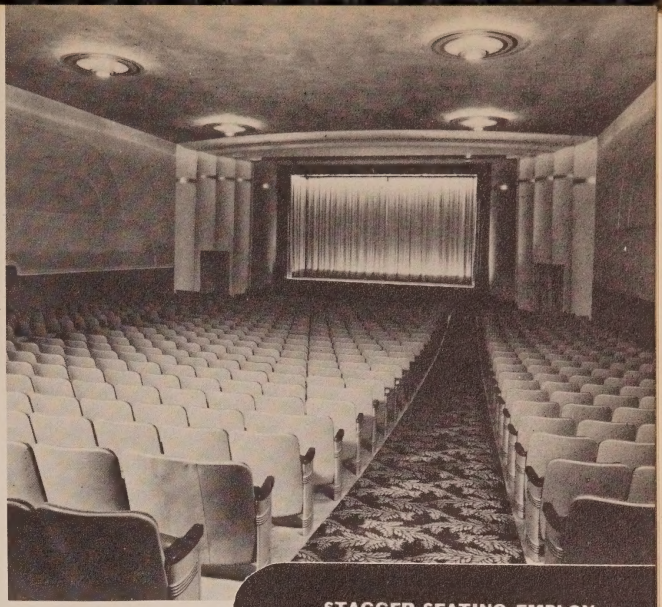
THE NEW

Bountiful

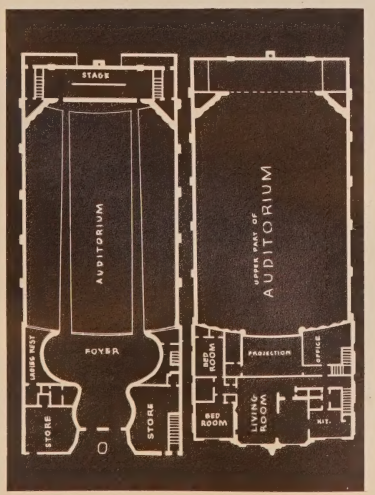
BOUNTIFUL, UTAH

Named for the town in Utah in which it is situated, (Population: 2,600) this modern house is truly an acceptable addition to the town's main business district. Architect Paul K. Evans of Salt Lake City designed the house for J. N. Bills, who both owns and operates. House policy is first run with a 30 cent top.

Top: **NEAT AND EFFECTIVE**
Bottom: **ILLUMINATED GLASS BRICK**



STAGGER SEATING EMPLOYING SPECIAL "LOVE SEATS"



REFERENCE FACTS:

BOUNTIFUL THEATRE

BOUNTIFUL, UTAH

Owner: J. N. Bills

Architect: Paul K. Evans

Size of Lot: 60 x 150

Seating Capacity: 656

Cost of Theatre Exclusive of Equipment: $50,000. Cost of Equipment: $25,000

Air Conditioning—Washed air system. Manufactured by the Trane Co.
Carpets—Cochrane Wilton. Manufactured by Chas. P. Cochrane Co.
Chairs—Ideal Aristocrat. Manufactured by Ideal Seating Co.
Changeovers—Weaver. Manufactured by Weaver Mfg. Co.
Coinchanger—Coinometer. Manufactured by Universal Stamping & Mfg. Co.
Curtain Controls and Track—ADC. Manufactured by Automatic Devices Co.
Decorator—H. H. Claussen Co.
Display Frames—Manufactured by Thomas Mfg. Co.
Draperies and Stage Curtains—Manufactured by Service Theatre Supply Co.
Film Cabinets—Neumade. Manufactured by Neumade Products Corp.
Lenses—Super Cinephor coated. Manufac- by Bausch & Lomb Optical Co.
Lighting Fixtures—Manufactured by C. P. Curtis Co.
Projection Lamps—Ashcraft Suprex. Manufactured by C. S. Ashcraft Mfg. Co.
Projection Machines—Motiograph Model K. Manufactured by Motiograph, Inc.
Rectifiers—Baldor. Manufactured by Baldor Electric Co.
Rewinders—Manufactured by GoldE Mfg. Co.
Screen—Walker. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by Young Electric Sign Co.
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.
Sound—Mirrophonic. Manufactured by Motiograph, Inc.
Supply Dealer—Service Theatre Supply Co.
Ticket Register—Manufactured by General Register Corp.

THE NEW

Delmar

SAN LEANDRO, CALIF.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 ·

39

This modern deluxer, seating 1187, was designed by Architect Alexander A. Cantin for the Golden State Theatre Circuit. Situated in San Leandro, California (Population: 13,700) in one of the town's neighborhood shopping districts. Its patrons are mostly middle class office workers.

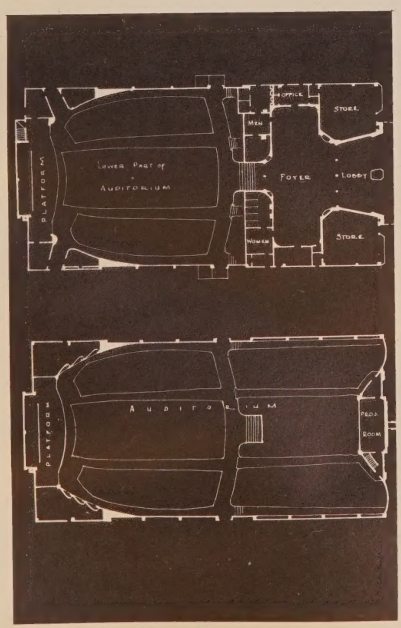
REFERENCE FACTS:

DELMAR THEATRE
SAN LEANDRO, CALIF.

Owner: Golden State Theatre Circuit
Architect: Alexander A. Cantin

Size of Lot: 135 x 160
Seating Capacity: 1187
Cost of Theatre: $88,000

Acoustical Material—Kalite. Manufactured by Certain-Teed Products Corp.
Carpets—Manufactured by D. N. & E. Walter Co.
Chairs—American. Manufactured by American Seating Co.
Changeovers—Weaver. Manufactured by Weaver Mfg. Co.
Coinchanger—Brandt. Manufactured by Brandt Automatic Cashier Co.
Curtain Controls and Track—Manufactured by Weidhaus
Decorator—Vogue Studios.
Display Frames—Manufactured by W. F. Nieder.
Draperies and Stage Curtains—Manufactured by Ideal Service Co.
Furniture—Manufactured by Karpen Furniture Co.
Generators—Manufactured by General Electric Co.
Lenses—Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Manufactured by Boyd Lighting Fixture Co.
Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.
Projection Machines—Simplex E-7. Manufactured by International Projector Co.
Rewinders—GoldE. Manufactured by GoldE Mfg. Co.
Rubber Mats—Manufactured by Pacific Coast Rubber Co.
Screen—Hurley. Manufactured by Hurley Screen Co.
Sign and Marquee—Manufactured by Wonderlite Neon Products Co.
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.
Sound—RCA. Manufactured by RCA Mfg. Co.
Supply Dealer—National Theatre Supply Co.
Ticket Register—Manufactured by General Register Corp.
Vending Machines—Candy. Manufactured by Auto Candy Machine Co.



Top: **ELABORATE DECORATIVE SCHEME**
Bottom: **SPACIOUS AND MODERN FOYER**

THE NEW

Oaks

OAKMONT, PA.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

40

1941

Architect Victor A. Rigaumont, of Pittsburgh, Pennsylvania, designed the house presented here for Stephen Rodnenok, who owns and operates. Seating 660, the house is located in Oakmont, Pennsylvania, (Population: 6,000).

STEPPED WALLS AND STEPPED CEILING SET THE DECORATIVE SCHEME

REFERENCE FACTS:

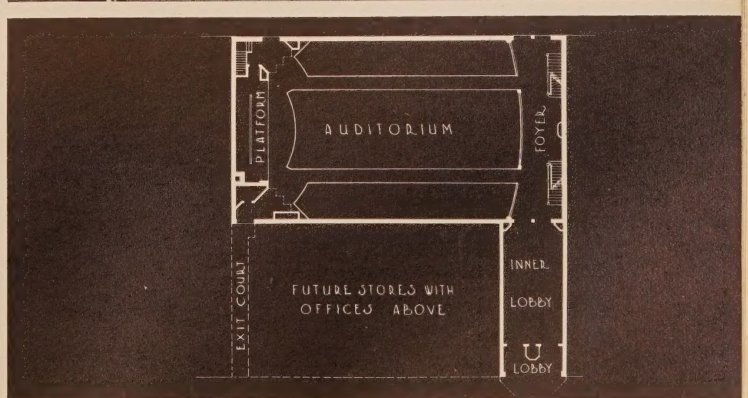
OAKS THEATRE

OAKMONT, PA.

Owner: Stephen Rodnenok
Architect: Victor A. Rigaumont

Size of Lot: 55 x 100
Seating Capacity: 660
Cost of Theatre: Confidential

Acoustical Material—Sabinite Plaster. Manufactured by the U. S. Gypsum Co.
Air Conditioning—Refrigeration system. Manufactured by the Westinghouse Electric Co.
Carpets—National Crestwood. Manufactured by the Alexander Smith & Sons Co., Inc.
Chairs—Air-Loc. Manufactured by Air-Loc Seat Industries, Inc.
Changeovers—Theid. Manufactured by the Dowser Mfg. Co.
Coinchanger—Nation-Wide. Manufactured by Nation-Wide Mfg. Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Wm. Naidenoff.
Display Frames—Manufactured by Lobby Display Frame Co.
Film Cabinets—Neumade. Manufactured by Neumade Products Co.
Generators—Hertner. Manufactured by Hertner Electric Co.
Lenses—Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Manufactured by Chas. J. Winston & Co., Inc.
Projection Lamps—Simplex High. Manufactured by Strong Electric Co.
Projection Machines—Simplex. Manufactured by International Projector Corp.
Rewinders—Simplex. Manufactured by International Projector Corp.
Rubber Mats—Manufactured by Puritan Rubber Mfg. Co.
Screen—Walker white. Manufactured by Walker American Corp
Sign and Marquee—Fabricated and erected by Artkraft Sign Co.
Sound—Simplex. Manufactured by International Projector Corp.
Supply Dealer—National Theatre Supply Co.
Ticket Register—Nation-Wide. Manufactured by Nation-Wide Mfg. Co.
Vending Machines—Candy. Manufactured by Berlo Vending Co.



THE NEW

Grand

WESTFIELD, N. Y.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 41

Michael J. Di Angelis, architect of Rochester, New York, was chosen to design this 850 seat house for Kenneth Blakely, owner and operator. So that the 15,000 farmers and town folk of Westfield, New York, would well enjoy their visits to the house, many comforts they would not otherwise enjoy were installed. House is a first run at a 28 cent admission.

REFERENCE FACTS:

GRAND THEATRE

WESTFIELD, NEW YORK

Owner: Kenneth Blakely
Architect: Michael J. DeAngelis

Seating Capacity: 850
Size of Lot: Irregular
Cost of Theatre: $85,000

Acoustical Material—Celotex. Manufactured by The Celotex Corp.

Air Conditioning—National Fans and Blowers.

Carpets—National Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.

Chairs—Irwin Clipper. Manufactured by the Irwin Seating Co.

Curtain Controls and Track—A.D.C. Manufactured by Automatic Devices Co.

Decorator—Novelty Scenic Studios, Inc.

Display Frames—Sealuxe. Manufactured by Universal Building Products Corp.

Draperies and Stage Curtains—Manufactured by Novelty Scenic Studios, Inc.

Film Cabinets—Neumade. Manufactured by Neumade Products Corp.

Furniture—Royal Chrome. Manufactured by Royal Metal Mfg. Co.

Generators—Hertner. Manufactured by Hertner Electric Co.

Lenses—Manufactured by Bausch & Lomb Optical Co.

Lighting Fixtures—Voigt. Manufactured by Voigt Co.

Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.

Projection Machines—Simplex E-7. Manufactured by International Projector Corp.

Rewinders—Neumade. Manufactured by Neumade Products Corp.

Screen—Walker Molded Plastic. Manufactured by Walker-American Corp.

Sign and Marquee—Fabricated and erected by American Electric Display.

Sign Letters—Manufactured by Wagner Sign Service, Inc.

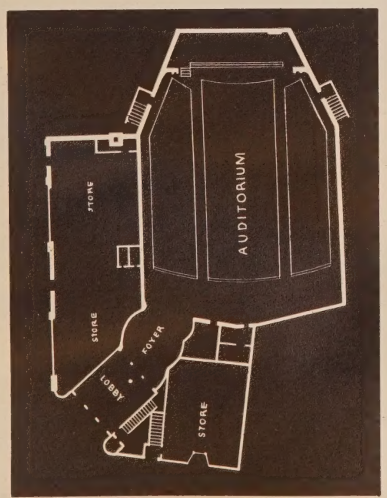
Sound—Manufactured by Western Electric Co.

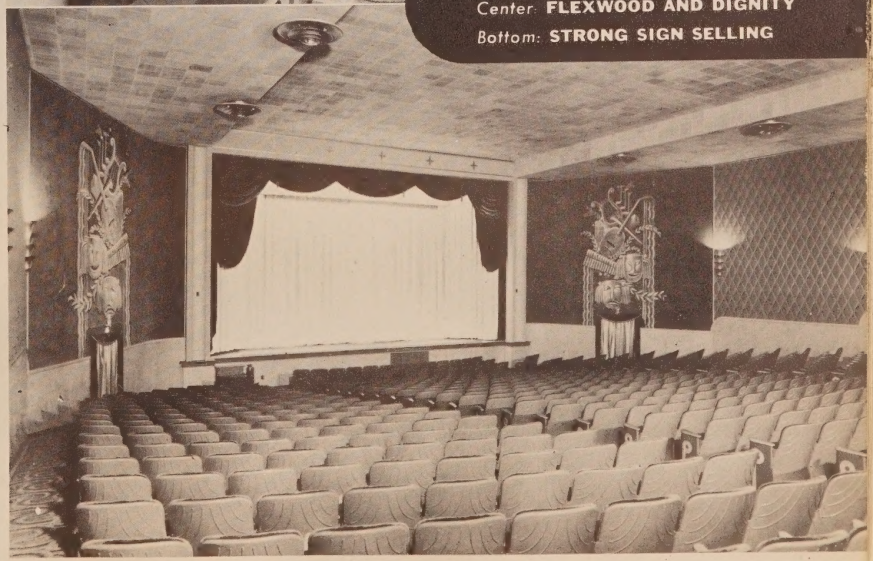
Supply Dealer—National Theatre Supply Co.

Ticket Register—Timco. Manufactured by Ticket Issuing Machine Corp.

Ticket Chopper—Manufactured by Newman Bros.

Wall Fabrics—Furnished and installed by Novelty Scenic Studios, Inc.





Top: **DECORATING WITH ACOUSTICS**
Center **FLEXWOOD AND DIGNITY**
Bottom: **STRONG SIGN SELLING**

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

42

1941

THE NEW

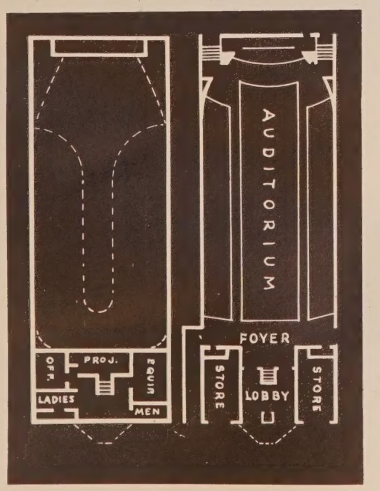
Bard

LOUISVILLE, KY.

Architect F. T. Winnenberg of Louisville, Kentucky, gave special attention to modern design when he planned this house now being operated by Louis Wiethe. Located in a neighborhood shopping district, the house policy is based on three changes each week with an admission top of 24 cents.

DECORATIVE MASSES WITHOUT ORNAMENTAL GINGERBREAD

FUNCTIONAL DESIGNING WITH ACCENT ON PATRON COMFORT



REFERENCE FACTS:

BARD THEATRE
LOUISVILLE, KENTUCKY

Owner: Chris Thodis
Operator: Louis Weithe
Architect: F. T. Winnenberg

Seating Capacity: 1018
Size of Lot: 60 x 169
Cost of Theatre Exclusive of Equipment: $65,000. Cost of Equipment: $30,000

Acoustical Material—Cinco-Acoustifelt. Manufactured by General Fireproofing Co.
Air Conditioning—Refrigeration system. Manufactured by Carrier Corp.
Carpets—Radcliffe Quality. Manufactured by Thomas L. Leedom.
Chairs—Manufactured by Ideal Seating Co.
Changeovers—Mfd. by Essannay Electric Co.
Coinchanger—Brandt Automatic Cashier Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Jackson Lumber Co.
Display Frames—Mfd. by Colonial Sales Corp.
Draperies and Stage Curtains—Manufactured by Falls City Theatre Equipment Co.
Drinking Fountains—Mfd. by Voigt Co.
Film Cabinets—Neumade. Manufactured by Neumade Products Co.
Generators—Mfd. by Strong Electric Corp.
Lenses—Manufactured by Projection Optics Co.
Lighting Fixtures—Manufactured by Jackson Lumber Co. and Voigt Co.
Projection Lamps—Mfd. by Strong Electric.
Projection Machines—Motiograph Model K. Manufactured by Motiograph, Inc.
Rewinders—GoldE. Manufactured by GoldE Mfg. Co.
Rubber Mats—Mfd. by O. W. Jackson & Co.
Screen—Mfd. by Da-Lite Screen Co.
Sign and Marquee—Fabricated and erected by Neon Art Signs.
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.
Sound—Mirrophonic. Mfd. by Motiograph, Inc.
Supply Dealer—Falls City Theatre Equipment.
Ticket Issuing Machine—Manufactured by General Register Corp.
Ticket Chopper—Mfd. by GoldE Mfg. Co.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

43

1941

THE NEW

Civic

DETROIT, MICH.

The locality in which this house is situated has become a residential section for defense workers. However, Joseph Miskinis, owner, had no knowledge, when selecting the site, of the infiltration of so many additional residents. This new crop of prospective patrons just about assures success to this new enterprise. Kenneth S. Frazier, Detroit architect, designed the house.

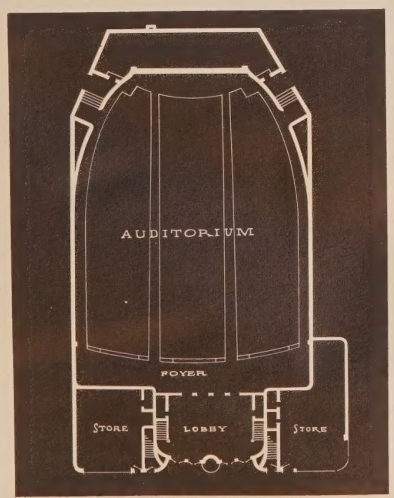
REFERENCE FACTS:

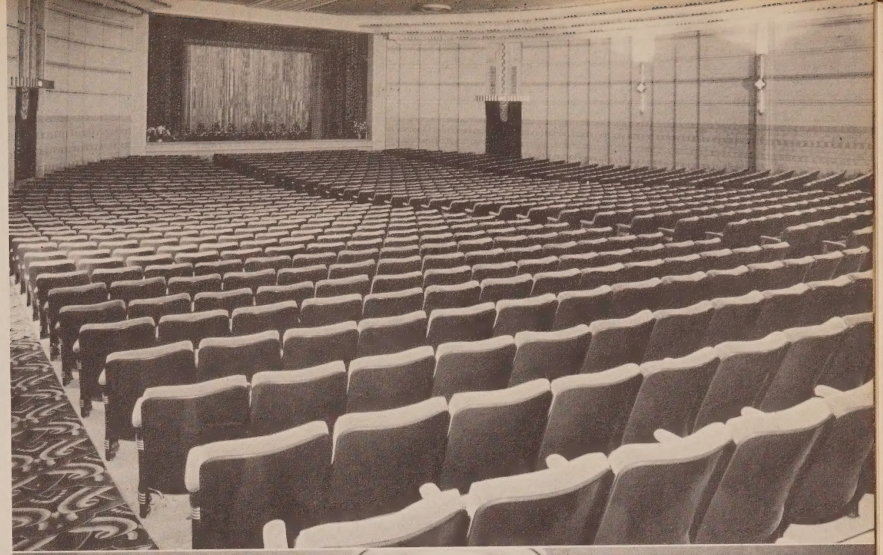
CIVIC THEATRE
DETROIT, MICHIGAN

Owner: Joseph Miskinis
Architect: Kenneth S. Frazier

Size of Lot: 181'6" x 110'
Seating Capacity: 1450
Cost of Theatre Exclusive of Equipment: $125,000. Cost of Equipment: $35,000

Acoustical Material—Cinder Block. Manufactured by Cinder Block Co., Inc.
Air Conditioning—Chrysler Air-Temp. Manufactured by Chrysler Corp.
Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Ideal Aristocrat. Manufactured by Ideal Seating Co.
Changeovers—Aperture Type. Manufactured by Weaver Mfg. Co.
Coinchanger—Lightning Cashier. Manufactured by Johnson Fare Box Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—T. Jagmin, Inc.
Display Frames—Built by contractor.
Draperies and Stage Curtains—Manufactured by Mork-Green Studios.
Film Cabinets—Neutype. Manufactured by Neumade Products Co.
Generators—Century Roth. Manufactured by Century Electric Co.
Lenses—Superlite. Manufactured by Projection Optics Co.
Lighting Fixtures—Manufactured by Detroit Metal & Tile Co.
Projection Lamps—Brenkert Enarc. Manufactured by Brenkert Light Projection Co.
Projection Machines—Motiograph Model K. Manufactured by Motiograph, Inc.
Rewinders—Goldberg Automatic. Manufactured by Goldberg Bros.
Rubber Mats—Manufactured by American Mat Corp.
Screen—Da-tone. Manufactured by Dalite Screen Co.
Sign and Marquee—Fabricated and erected by the Long Sign Co.
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.
Sound—Motiograph Mirrophonic. Manufactured by Motiograph, Inc.
Supply Dealers—McArthur Theatre Equipment Co. and National Theatre Supply Co.
Ticket Issuing Machine—Manufactured by General Register Corp.
Ticket Chopper—Manufactured by Goldberg Bros.





Top: **DECORATED CINDER BLOCK WALLS**
Center: **CEILING PLAQUES FOR LIGHTING**
Bottom: **SELF OPENING HERCULITE DOORS**

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

44

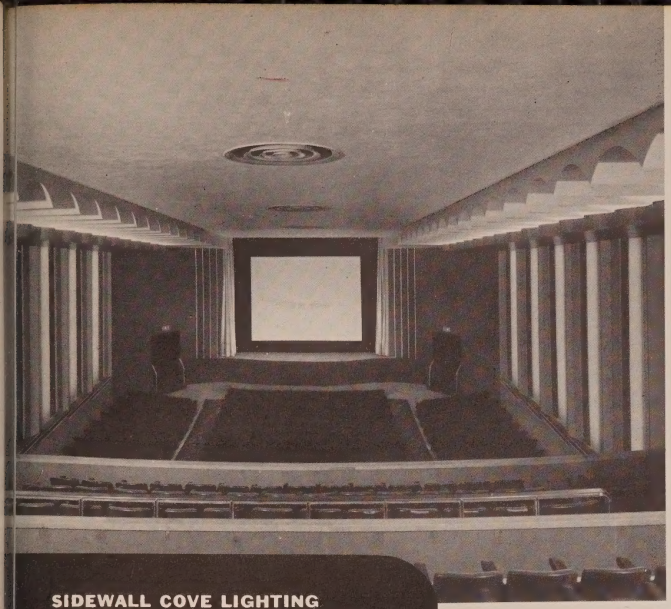
* 1941 *

THE NEW

20th Century

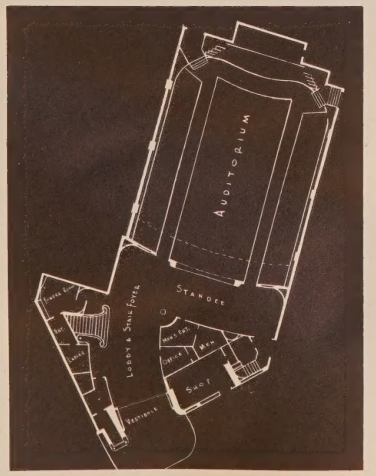
CINCINNATI, O.

Situated in a neighborhood with a population of 50,000, mostly defense workers, this house works on a policy of three show changes weekly with an "owl" show at midnight on Saturdays. F & Y Building Service erected the house for The Oakley Amusement Corporation.



SIDEWALL COVE LIGHTING
THE MAJOR DECORATIVE TOUCH

FLEXGLASS PILLARS - MOVIE
CARPETS - AND LUXURIOUSNESS



REFERENCE FACTS:

20th CENTURY THEATRE
CINCINNATI, OHIO

Owner: The Oakley Amusement Corp.
Operator: Willis E. Vance
Architects: Maffit, Alcox & Stritzel architects for F & Y Building Service

Size of Lot: Irregular
Seating Capacity: 900
Cost of Theatre: $130,000

Acoustical Material—Kimsul Blanket. Manufactured by Kimberly-Clark Co.
Air Conditioning—Water coils. Manufactured by McQuay, Inc.
Carpets—Mohawk. Manufactured by Mohawk Carpet Mills, Inc.
Chairs—Mfd. by International Seat Corp.
Changeovers—Manufactured by Brenkert Light Projection Co.
Construction Materials—Terra Cotta. Manufactured by Federal Seaboard Terra Cotta Co.
Curtain Controls and Tracks—Clancey. Manufactured by J. R. Clancey Co.
Decorator—F & Y Building Service.
Display Frames—Manufactured by Business Booster Equipment Co.
Draperies and Stage Curtains—Manufactured by Business Booster Equipment Co.
Film Cabinets—Manufactured by Neumade.
Glass Doors—Tuflex. Manufactured by Owens-Illinois Glass Co.
Lenses—Superlite. Projection Optics Co.
Projection Lamps—Brenkert Enarc. Manufactured by Brenkert Light Projection Co.
Projection Machines—Brenkert. Manufactured by Brenkert Light Projection Co.
Rectifiers—Benwood-Linze copper oxide. Manufactured by Benwood-Linze Corp.
Rewinders—Manufactured by Goldberg Bros.
Rubber Mats—Mfd. by Puritan Rubber Co.
Screen—Mfd. by Dalite Screen Corp.
Sign and Marquee—Fabricated and erected by Lackner Sign Co.
Sign Letters—Wagner Sign Service Co.
Sound—RCA. Manufactured by RCA Mfg. Co.
Supply Dealer—Midwest Theatre Supply Co.
Ticket Issuing Machine—General Register.
Ticket Chopper—Mfd. by GoldE Mfg. Co.
Vending Machines—Berlo Vending Co.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT · 1941 · 45

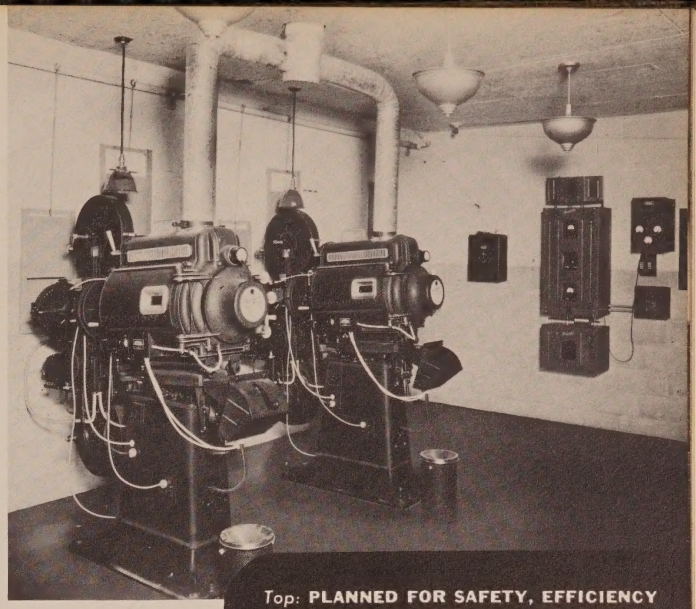
THE NEW

Bloomfield

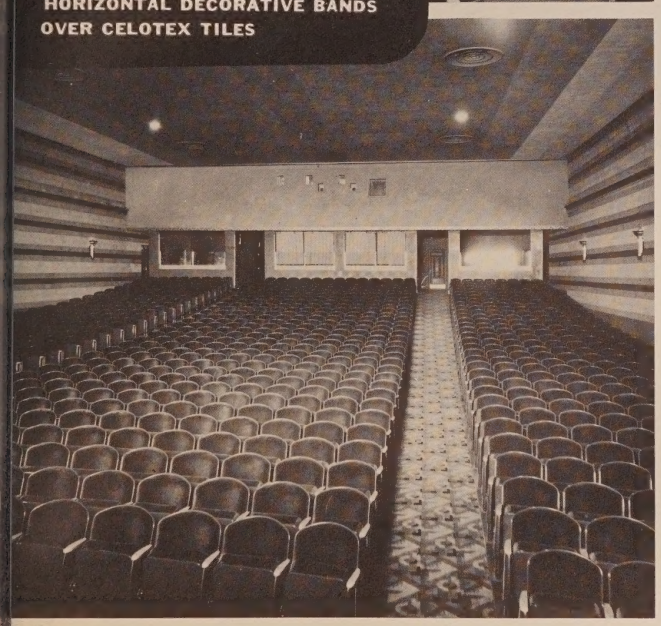
BIRMINGHAM, MICH.

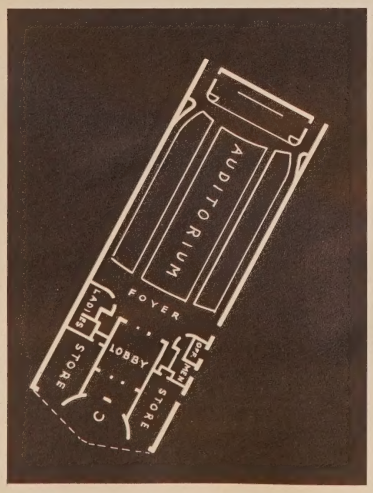
Bennett and Straight, architects of Dearborn, Michigan, designed this house, located in the main business section of Birmingham, Michigan, (Population: 11,167) for the owner, E. Newhall. House is operated by the United Detroit Theatre Corporation as a subsequent to second run Detroit. Many are of the upper class and patronize "class" pictures more so than any other type.

HORIZONTAL DECORATIVE BANDS OVER CELOTEX TILES



Top: **PLANNED FOR SAFETY, EFFICIENCY**
Bottom: **SPECIAL CANDY COUNTER**





REFERENCE FACTS:

BLOOMFIELD THEATRE
BIRMINGHAM, MICHIGAN

Owner: E. Newhall
Architects: Bennett & Straight
Size of Lot: 80 x 340
Seating Capacity: 957
Cost of Theatre Exclusive of Equipment: $75,307.00. Cost of Equipment: $35,000

Acoustical Material—Celotex and Sprayed Limpet. Celotex manufactured by Celotex Corp. Sprayed Limpet manufactured by Keasby-Mattison Corp.
Air Conditioning—Manufactured by U. S. Air Conditioning Corp.
Carpets—Wilton. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Mfd. by Heywood-Wakefield Co.
Changeovers—Theid. Mfd. by Dowser Mfg. Co.
Coinchanger—Brandt Automatic Cashier Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Thomas DiLorenzo.
Display Frames—Aluminum. Manufactured by Aluminum and Art Metal Corp.
Draperies and Stage Curtains—Manufactured by Mork-Green Studios.
Film Cabinets—Manufactured by Neumade.
Furniture—Manufactured by Davidson, Ltd.
Generators—Mfd. by Hertner Electric Co.
Lenses—Super Cinephor. Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Mfd. by The Gayne Co.
Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Mfg. Co.
Projection Machines—Simplex E-7. Manufactured by International Projector Corp.
Rewinders—Goldberg Automatic and Simplex Hand. Goldberg Automatic manufactured by Goldberg Bros. Simplex Hand manufactured by International Projector Corp.
Rubber Mats—Mfd. by U. S. Rubber Co.
Screen—Walker Plastic Molded. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by American Electric Display.
Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.
Sound—Simplex 4 Star. Manufactured by International Projector Corp.
Supply Dealer—National Theatre Supply Co.
Ticket Register—General Register Corp.
Ticket Chopper—Manufactured by Neumade.
Vending Machines—Mfd. by Rowe Mfg. Co.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

46

1941

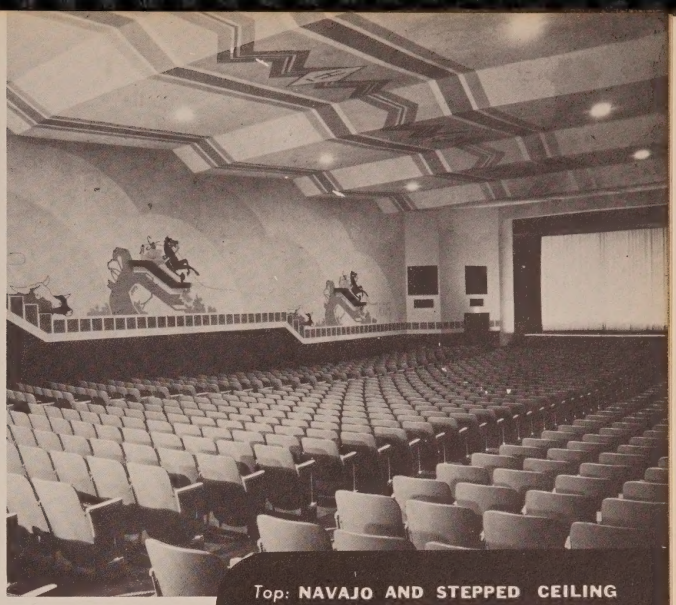
THE NEW

Will Rogers

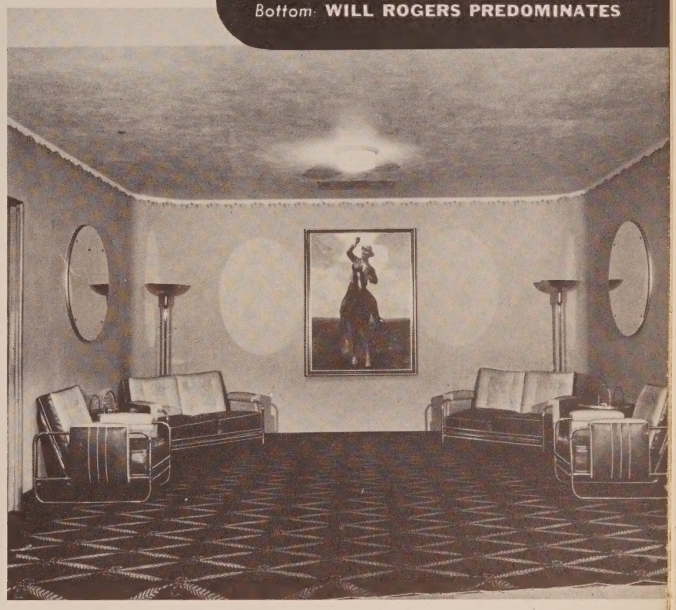
TULSA, OKLA.

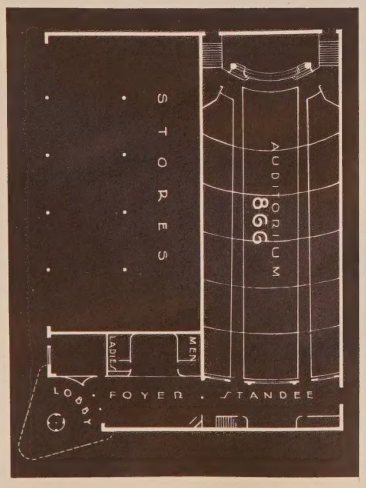
Situated in a neighborhood of Tulsa, Oklahoma, (Population: 141,750) housing about 8000 prospective theatre patrons, with incomes of $150 to $200 monthly, this house is a deluxe subsequent run. Jack Corgan, architect, Dallas, Texas, designed the house for Griffith Southwestern Theatres, Inc.

Top: **BEACONLIKE SIGNWORK**
Bottom: **MODERN CHROME FURNISHINGS**



Top: **NAVAJO AND STEPPED CEILING**
Bottom: **WILL ROGERS PREDOMINATES**





REFERENCE FACTS:

WILL ROGERS THEATRE
TULSA, OKLAHOMA

Owner: Griffith Southwestern Theatres, Inc.
Architect: Jack Corgan

Size of Lot: 50 x 140 plus 30 x 50 Entrance
Seating Capacity: 866
Cost of Theatre Exclusive of Equipment: $46,000. Cost of Equipment: $22,000

Acoustical Material—Macoustic. Manufactured by National Gypsum Co.
Air Conditioning—Manufactured by U. S. Air Conditioning Corp.
Carpets—Wilton. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Mfd. by American Seating Co.
Coinchanger—Brandt Automatic Cashier Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Display Frames—Sealuxe. Manufactured by Universal Building Products Corp.
Draperies and Stage Curtains—Decorating Dept. of Griffith Southwestern Theatres, Inc.
Film Cabinets—Manufactured by Neumade.
Furniture—Royal Chrome. Manufactured by Royal Metal Mfg. Co.
Generator—Robin Imperial. Manufactured by J. E. Robin, Inc.
Projection Lamps—Brenkert Senarc. Manufactured by Brenkert Light Projection Co.
Projection Machines—Simplex. Manufactured by International Projector Corp.
Rewinders—Manufactured by Neumade.
Rubber Mats—Ezy Mat. Manufactured by American Mat Corp.
Screen—Walker Plastic Molded. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by Claude Federal Neon Co.
Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.
Sound—Simplex 4-Star. Manufactured by International Projector Corp.
Supply Dealer—National Theatre Supply Co.
Ticket Issuing Machine—Manufactured by General Register Corp.
Vending Machines—Mfd. by Manley, Inc.

THE NEW

Redskin

OKLAHOMA CITY, OKLA.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

47

1941

R. Lewis Barton, owner, selected Jack Corgan, Dallas, Texas architect, to design this house for Oklahoma City, Oklahoma, (Population: 204,517). House is located in a neighborhood residential section, and plays last run film at an admission of 20 cents.

REFERENCE FACTS:

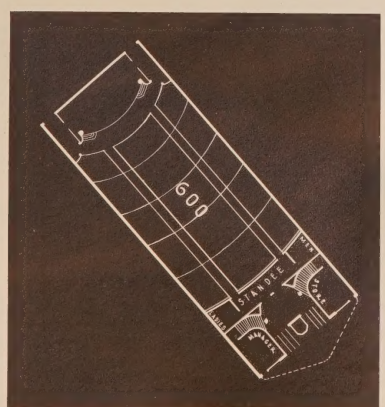
REDSKIN THEATRE

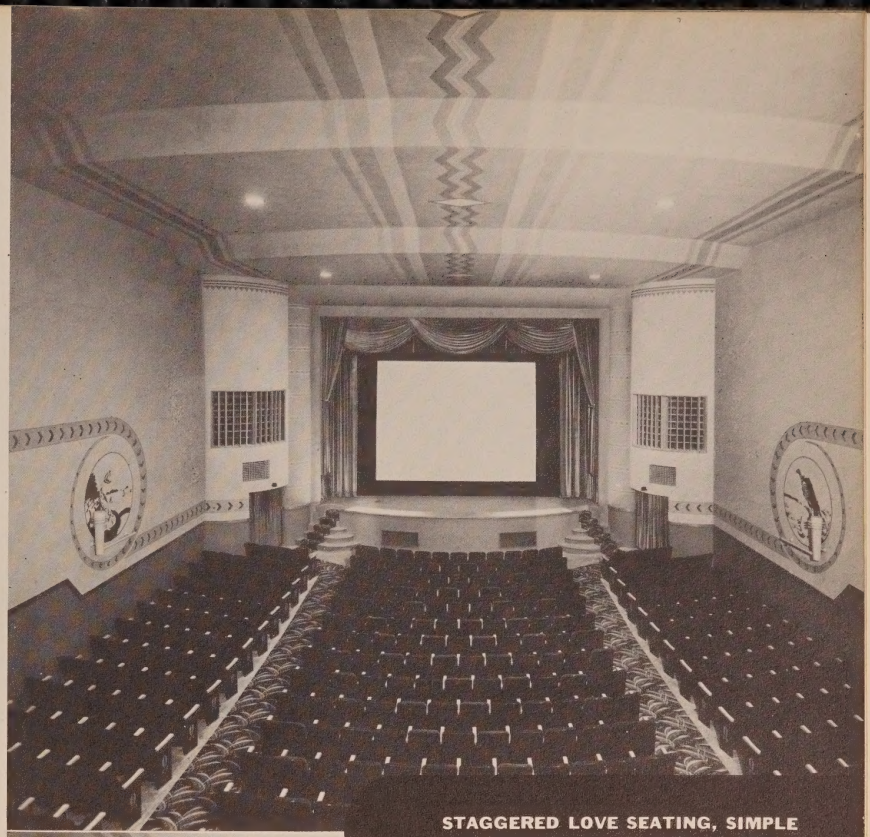
OKLAHOMA CITY, OKLAHOMA

Owner: R. Lewis Barton
Architect: Jack Corgan

Size of Lot: 50 x 125
Seating Capacity: 900
Cost of Theatre Exclusive of Equipment: $44,100. Cost of Equipment: $18,000

Acoustical Material—Sabinite. Manufactured by U. S. Gypsum Co.
Air Conditioning—Washed air system. Manufactured by U. S. Air Conditioning Corp.
Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Mfd. by American Desk Mfg. Co.
Changeovers—Mfd. by Weaver Mfg. Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Chas. E. Watson, Inc.
Display Frames—Sealuxe. Manufactured by Universal Bldg. Products Corp.
Draperies and Stage Curtains—Manufactured by Griffith Amusement Co.
Film Cabinets—Neutype. Manufactured by Neumade Products Corp.
Furniture—Royal Chrome. Manufactured by Royal Metal Mfg. Co.
Generators—Mfd. by Hertner Electric Co.
Lenses—Super Cinephor. Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Mfd. by Meletio Electric Co.
Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Co.
Projection Machines—E-7 Simplex. Manufactured by International Projector Corp.
Rewinders—Mfd. by Neumade Products Corp.
Rubber Mats—Mfd. by American Mat Corp.
Screen—Walker Plastic Molded. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by Texlite, Inc.
Sign Letters—Wagner Sign Service, Inc.
Sound—Simplex 4-Star. Manufactured by International Projector Corp.
Supply Dealer—National Theatre Supply Co.
Ticket Register—General Register Corp.
Vending Machines—Mfd. by Manley, Inc.





STAGGERED LOVE SEATING, SIMPLE DECORATION AND A SMALL BALCONY

THE NEW

Hopkins

HOPKINS, MINN.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT

48

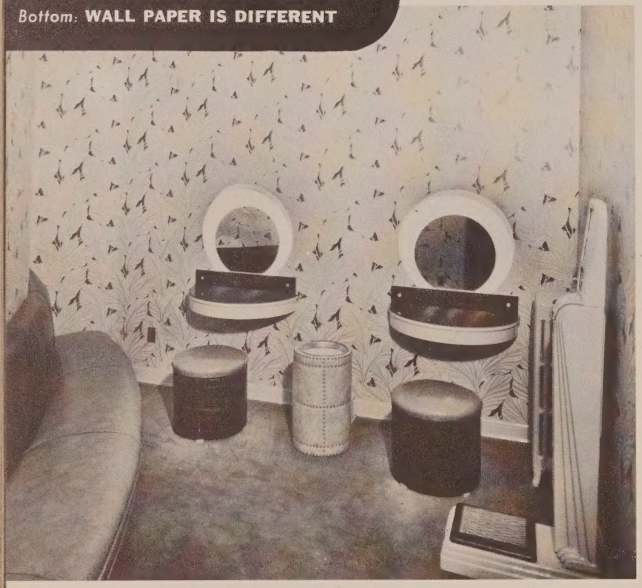
1941

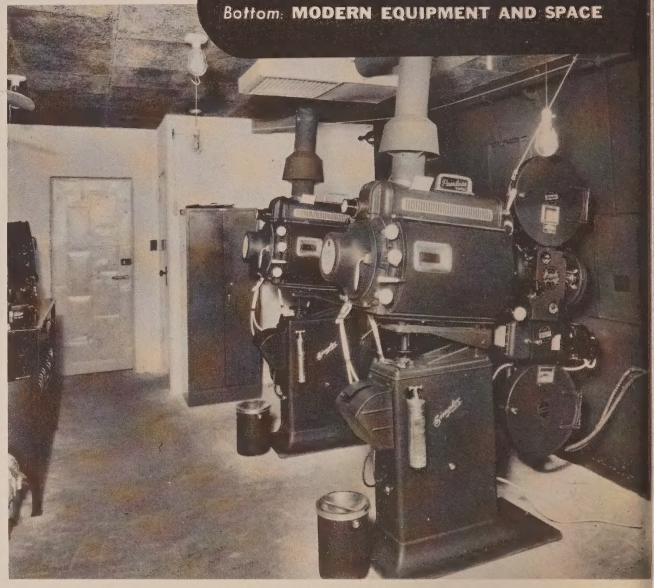
Hopkins, Minnesota, (Population: 3,834) is the locale of this new house designed by Perry E. Crosier, architect of Minneapolis, Minnesota, for the Engler Brothers. House is situated in the main business section of Hopkins, located just seven miles from Minneapolis. Of importance to the success of the theatre is the new housing project being started directly opposite.

STAGGERED LOVE SEATING, ACOUSTIC BOARD CEILING, DECORATING SIMPLICITY

Top: **HUGE MARQUEE FOR SELLING**
Bottom: **WALL PAPER IS DIFFERENT**

Top: **SPECIALLY DESIGNED FURNISHINGS**
Bottom: **MODERN EQUIPMENT AND SPACE**





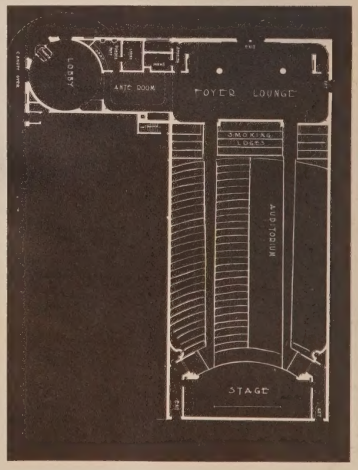
REFERENCE FACTS:

HOPKINS THEATRE
HOPKINS, MINNESOTA

Owner: Engler Bros.
Architect: Perry E. Crosier

Size of Lot: 200 x 400
Seating Capacity: 1250
Cost of Theatre Exclusive of Equipment: $100,000. Cost of Equipment: $27,500

Acoustical Material—Mfd. by Celotex Corp.
Air Conditioning—Kooler-Air. Manufactured by U. S. Air Conditioning Co.
Carpets—Crestwood Fluorescent. Manufactured by Alexander Smith & Sons Co., Inc.
Chairs—Manufactured by Irwin Seating Co.
Changeovers—Mfd. by Dowser.
Coinchanger—Coinometer. Manufactured by Universal Stamping & Mfg. Co.
Curtain Controls and Track—Vallen. Manufactured by Vallen, Inc.
Decorator—Gunnar Dahlstrom Co.
Draperies and Stage Curtains—Manufactured by National Theatre Supply Co.
Film Cabinets—Manufactured by Neumade.
Generators—Hertner. Manufactured by Hertner Electric Co.
Lenses—Cinephor. Manufactured by Bausch & Lomb Optical Co.
Lighting Fixtures—Mfd. by Vent & Canopy Co.
Projection Lamps—Peerless Magnarc. Manufactured by J. E. McAuley Co.
Projection Machines—Simplex E-7. Manufactured by International Projector Corp.
Rewinders—Goldberg and Neumade. Goldberg manufactured by Goldberg Bros. Neumade manufactured by Neumade Products Corp.
Rubber Mats—Manufactured by American Mat Corp. and Goodyear Tire & Rubber Co.
Screen—Walker Plastic Molded. Manufactured by Walker-American Corp.
Sign and Marquee—Fabricated and erected by Vent & Canopy Co.
Sign Letters—Mfd. by Vent & Canopy Co.
Sound—Simplex 4 Star. Manufactured by International Projector Corp.
Supply Dealer—National Theatre Supply Co.
Ticket Issuing Machine—Timco. Manufactured by Ticket Issuing Machine Co.
Ticket Chopper—Manufactured by Newman.
Vending Machines—Mfd. by Manley, Inc.



EFFECTS THAT CAN BE GAINED WITH—

Construction Economies

An architect who specializes in rural communities describes the methods and reasons for his successful theatres on low budgets.

by Paul K. Evans

"CAN I CONSTRUCT an attractive, small, modern theatre in my town, keeping the costs within a figure which can be successfully amortized?"

With the public demand for better theatres, exhibitors, in ever increasing numbers, are asking this question.

In the average rural or small town the limitations of patronage and lower rate of admission price, necessitated because of the delayed product availability, require that much economy be practiced in the design of this type of theatre.

One of the factors contributing to an opportunity for the use of economy in the small town theatre is the lesser demand for luxuries in this class than in the deluxe house of the city. However, the small town patron is entitled to projection, sound, ventilation, and other fundamental mechanics on a par with the deluxe house. With a limited degree of luxury, elimination of costly "gingerbread" decorations and making use of less expensive materials, these fundamentals can be provided, and, at the same time, the total cost of the project kept within the limit which can be successfully amortized.

THE AVERAGE SMALL TOWN exhibitor, having had little or no experience in building, must look for the best course to follow in order to obtain an efficient structure, properly coordinated with all mechanical subdivisions. In order to obtain this with the least difficulty, and with the most efficiency, he should select his architect (preferably one specializing in theatre design) as soon as he has decided to build. In this way, the client will be saved from placing unnecessary sums of money into his building construction through improper planning, and through a series of sketches provided by his architect, the client can have a suitable layout provided before the actual drawings are started.

As most towns have no building code, there is more than a possibility of having a structure, through either faulty design by an incompetent person, or through improper use of materials and poor workmanship, constructed in a dangerous manner.

INTERIOR FLOORS AND PARTITIONS

In the design of small theatres outside of certain limited fire zones, I have used interior wood partitions in a good many cases. While the building codes allow a better rating for solid masonry interior partitions, I feel that the interior walls and some roof construction may be effectively made of wood, and that this type construction, if properly applied, is much less objectionable than most people would think.

In this construction, however, the wood members should be two and one-half inches in thickness, but must not, under any circumstances, be built with framing members of less than two inches nominal sized lumber. All joists and studs must be kiln dried, and of grading to sustain properly any stresses acting on these members.

CONCRETE FIRST FLOOR SLAB

Even though some other parts of a small theatre may be constructed of wood, there are various definite reasons why I feel that the main floor must be formed of concrete.

First:

There is usually a fairly large amount of excavation which must be made in taking care of the floor slope in the majority of these properly designed houses. A concrete floor should be laid on about four inches of clean cinders or gravel which would require a total depth of nine inches or so, while a first floor of wood construction requires a depth, including air space below, of at least two feet, six inches to ground level. Obviously, for this reason, a concrete First Floor requires less excavation and foundation wall height than a floor of wood.

Second:

As the underside of a wood floor, used on the main level in practically any example, would be left unprotected, there is always a potential fire hazard from this construction. There can be no surer protection against fire and vermin than a concrete floor.

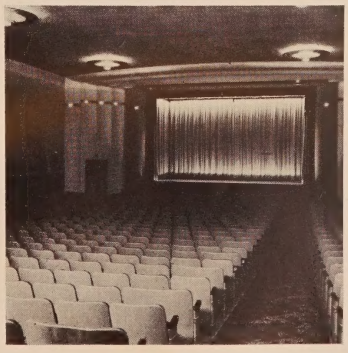


FIG. 1. Showing combination lighting and ventilating plaques for ceilings and carpet set flush in aisle recesses.

Third:

Suitable recesses can be provided in aisles and other areas for setting the carpet flush with other finished faces, thus minimizing the edge wear and preventing accidents. (See fig. 1).

Fourth:

A concrete floor can be formed to the exact changes in slopes and bowled as required by different seat radii. These changes in the main auditorium floor are difficult to properly form if constructed of wood, and require intermediate supporting walls or posts and beam construction.

Fifth:

Concrete provides a reliable body for securing of auditorium seats.

FIRE INSURANCE

By framing the interior partitions and floors as above described, the theatre owner should be able to receive a fire insurance rating closely approaching Class "B". The buildings of this type, which have received this rating, have been provided with firehose in the foyer and on the stage, with an extinguisher provided for the booth.

An economical and effective method of providing a fire resisting floor under the projection and generator rooms is shown in Fig. 1. The first layer of insulation board is nailed onto the flooring, with the second layer laid unsecured over the first. A layer of water-resistant felt is placed over this board, and the two inch layer of concrete is set as a finished floor. Transmission of sound through the floor is practically eliminated by using this method.

A simple way of eliminating noise transmission through the walls is also shown in Fig. 1, consisting of double 2″ x 4″ studs staggered 16″ o.c. with a 2″ x 6″ plate-top and bottom for fire stopping. This method has been used in some theatre work, and has proven entirely efficient.

INTERIOR WALL FINISHES

Wall finishes such as damask over felt blanket or rock wool, several types of insulation board in varying degrees of texture and sound absorbing values,

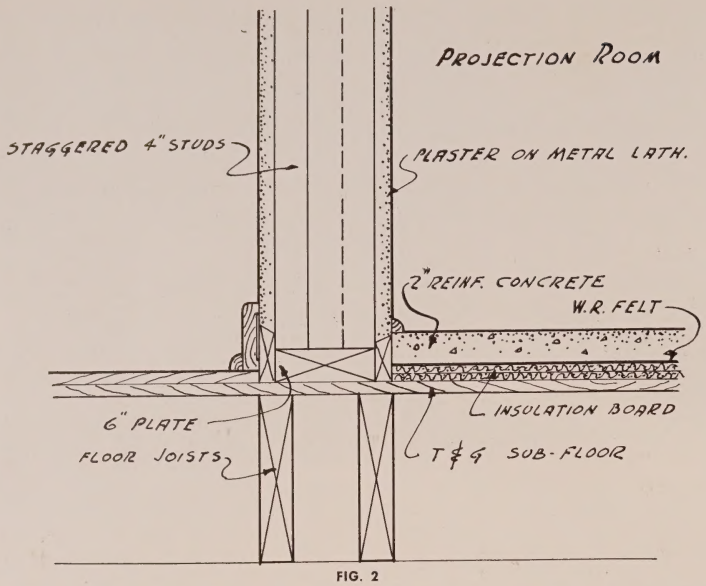


FIG. 2

acoustic plaster, and hollow, light weight exposed concrete block facing, offer a variety of sound absorbing materials for the small auditorium.

Damask for wall facing can be obtained in a number of attractive patterns, but great care must be taken in application on walls to insure a tight even stretch over the full surface.

Another pleasing effect is gained by using insulation board on the wall and ceiling, which is then tinted in many different shades. This should be applied with the edges carefully glued to assure against separation of the board in the future.

Light weight hollow concrete blocks, with the face exposed, have been used successfully in auditorium wall facings. Faces of this type of wall can be made into a fairly attractive design, are economical, and retain fairly good acoustics after decoration is applied.

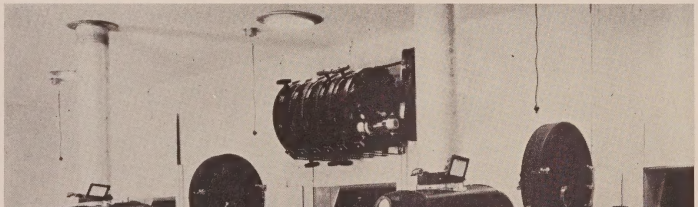
Acoustic plaster in numerous textures and of different thickness on auditorium walls and ceiling gives very good sound absorbing results. This material may be tinted in any number of colors before application, and is, in my opinion, one of the most desirable materials for all around efficiency and decoration. However, in making application of this material, there should always be a sufficiency of mechanics to work the wall and ceiling in a continuous operation so that no joints will be left exposed.

Foyer, lobby, and office walls can be very economically finished with a white putty coat of plaster over a gypsum plaster base. This base should in all instances if applied over studding be placed on metal lath.

While much more expensive materials can be used for the toilet room walls, such as tile, structural glass, baked enamel on steel, etc., and while these form a most desirable impervious finish, they may, for the sake of economy, be replaced by a sand finish plaster with a high gloss enamel. This surface, while not as desirable as the ones named above, has been used with successful results, and the combination of a hardened, rough texture with the gloss finish should tend to discourage wall scribblers, etc.

EXTERIOR WALL FACINGS

Materials which have been used for the exterior front facing on the medium priced and most expensive buildings are different grades and shapes of terra cotta, glazed tile, metals, baked enamel on steel, various forms of structural glass, and different makes of highly polished cast stone. All of these materials are very desirable for the theatre front. However, where more economy is needed in the



Note the absence of exposed conduit, etc., on the front wall of this projection booth in Utah. Neatness can be accomplished in the small theatre booth by proper planning.

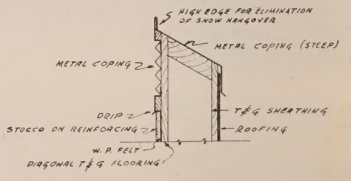


FIG. 3

construction of this building face, a stucco can be used with very good effect. material does not afford the protection from abuse within the reach of would-be scribblers, etc., as one of the harder materials above named, but can be used even at a low elevation where pocketbook demands dictate thrift throughout the structure.

In the upper level of the front elevation, I feel that stucco can be classed as an ideal solution to the wall facing problem for practically any type of small building. In order to have a workable surface, void of cracks, etc., the stucco must be applied according to the best practices with suitable reinforcing and properly designed flashings. If these items

are taken care of, there is little need for fear in the use of this material in practically any climate.

Galvanized iron copings (Fig. 4) can be effectively designed to work in harmony with stucco wall facing, and to act as a durable flashing material to accomplish their desired results.

LIGHTING, HEATING AND VENTILATING

Even in the small house, there should be some subject in the foyer which is designed to catch the eye, and cause comment from the patron. One of the most satisfactory ways of taking care of this item is by lighting the foyer through glass blocks built into the walls as panels or pilasters. With this construction, the globes or fluorescent lights are set behind the blocks in conjunction with a reflector surface at the rear of the lights. These panels or pilasters can be worked out in any number of ways for practically any shaped foyer to spread the light over this area as desired, and with the least amount of glare. This has proven a straightforward way for the distribution of light in this section and, at the same time, gives a simple, but stunning effect. (See Fig. 4).

Where lighting such as the above mentioned cannot be worked into the building budget, simple standardized ceiling fixtures, suitable for this purpose, can be obtained from numerous manufacturers. These fixtures, while possibly not possessing the richness of other more expensive ones, will adequately take care of lighting the small foyer or lobby.

Even in a small house, the air, if possible, should be distributed through a number of outlets arranged on the ceiling in conjunction with the lighting scheme. A number of grills located at the outside walls and near the center of the auditorium at the floor should also be used to properly return the air by tunnel to the heating unit. In distribution and return of the air in this manner a much more efficient system with less draft is in operation than pouring the air through openings at each side of the proscenium. The lighting and heating outlets for the auditorium can be successfully worked into combination units with Masonite or Celotex ducts through the attic supplying the air to these fixtures. With this attic duct method, smaller leads can be taken, branched from the main supply for heating and ventilating the foyer, projection booth, toilet rooms, etc., in the front building area. A door into the attic duct at the side of each ceiling fixture can be provided as an access for ease in replacement of lights.

In the majority of cases, the air washing system will still be found as the cheaper method both in first cost and in operating cost for cooling the small theatre in parts of the country where the relative humidity is comparatively low.

In order to conserve on the operating costs for heating the small theatre, four inches of Rock Wool or other insulation of equal value should be applied at the ceiling joists.

FIG. 4. Showing glass block lighting panels and simplicity in foyer design.

PLUMBING

Some contributions for a less expensive plumbing installation may be taken by using white in place of colored fixtures; enameled iron lavatories instead of vitreous china; replacing the siphon jet with the reverse trap type water closet; and in some locations by setting "standard" weight instead of "extra heavy" cast iron pipe for the "house" sewer.

HARDWARE

Instead of the expensive extruded metal display cases which are usually used in the de luxe house, money can be saved by installing cases made of kalameined stainless steel, chromium metal, or bronze for the exposed frame sections.

Front door hardware can be brass or bronze polished in a natural finish. The cost for this hardware can be cut considerably in this way instead of using one of these metals with a chromium finish as is done in a great many instances.

A savings in door hardware may be made on entrances to secondary areas such as office, passages, and restrooms by using wrought brass hardware instead of cast brass.

Further economy can be practised by substituting the regular surface type door closure for the more expensive floor type.

Adequate hardware fixtures should be furnished for all exit doors. A cut in the amount of hardware for these doors may prove to be a dangerous condition in case of a fire.

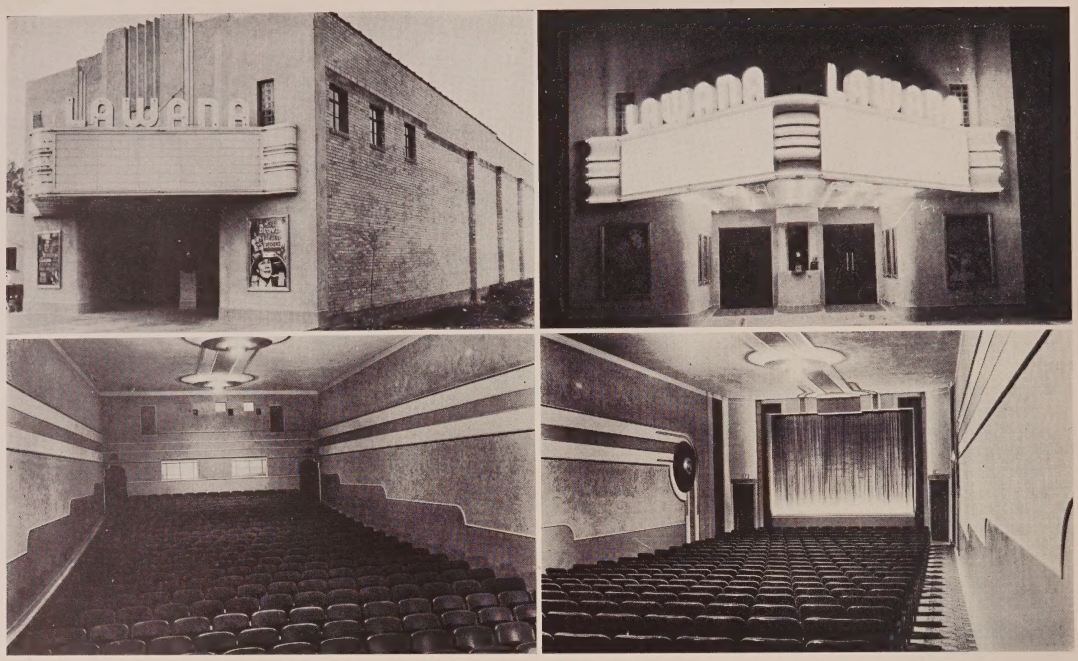
OTHER CONSIDERATIONS

In the design of a small town theatre, thorough consideration and study should be given as to the feasibility of stores or office space being worked into the plan of the proposed structure. Many times these areas may be incorporated into the general scheme as shop or office space in such a manner as to help the building successfully amortize the investment in a shorter time.

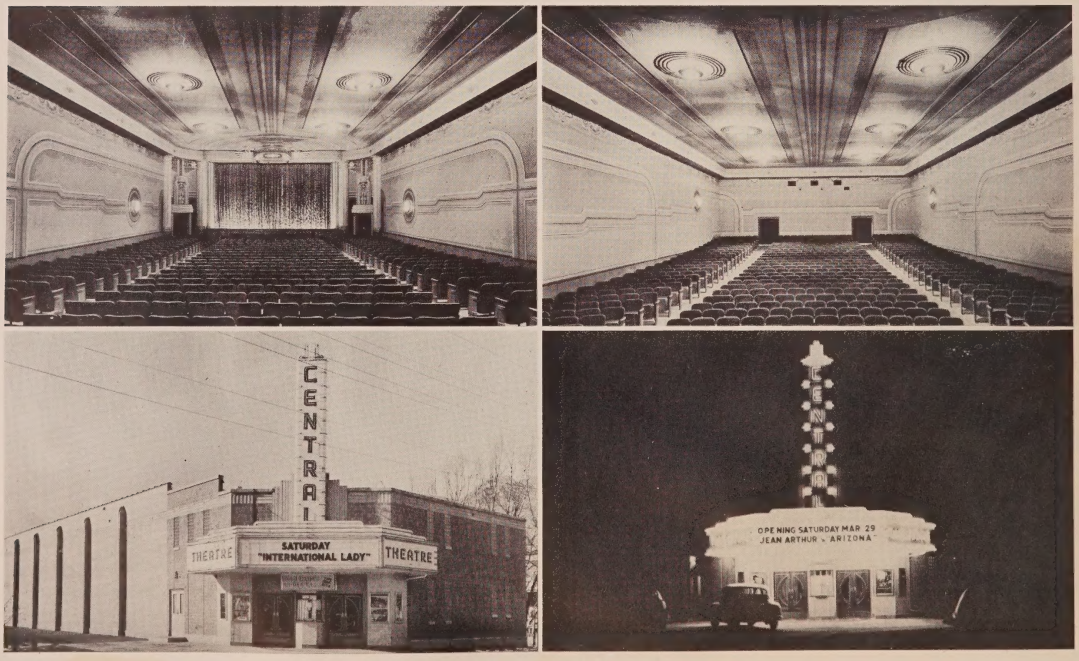
The large savings may be made in the small theatre construction by taking the specific proposed building under consideration, and studying it through a series of proper preliminary drawings.

In this way, waste in space and materials can be eliminated, a much more workable plan can be obtained, the most satisfactory framing method may be derived, and all mechanical features can be most suitably coordinated and properly located.

With an extensive experience, Paul K. Evans has designed theatre buildings in Utah, Nevada, Idaho, and Montana. He was born in Salt Lake City in October, 1908, attended East High School, and later the University of Utah. He received his initiation into architectural drafting in the office of Woolley and Evans, Salt Lake City, in 1929, worked for various architects, and received his license to practice architecture in 1937. In addition to theatres, he has designed other commercial buildings and residences. He is a member of the Society of American Military Engineers, and is at present secretary-treasurer of the Utah Chapter of the American Institute of Architects.



OTHER RECENT THEATRES that were economically designed by Paul K. Evans. TOP: The 390 seat LAWANA THEATRE, FALLON, NEVADA, for Walter Hull and Lee Birge which opened October 30, 1941. Costing $32,000 and built on a lot 50 x 150 feet, it plays for an admission scale of 35c to 10c. Note the use of "love seats" to attain stagger sight lines and the simplicity of the effective decorative scheme.



BOTTOM: The 731 seat CENTRAL THEATRE, ELY, NEVADA, for P. W. and Walter Hull which opened March 31, 1941. Costing $62,000 and built on a lot 100 x 150 feet it provides ample parking space and plays for an admission scale of 40c to 15c. The front is particularly effective, combining an attractive daytime exterior with forceful lighting for night-time attention.

The Drive-in Theatres

ACHIEVE THEIR OWN PLACE IN THE SUN

From an inauspicious beginning, their rise in public favor, number and quality should be noted and promise future success.

by Mary O'Hara

AN INFANT INDUSTRY within the industry, the grinned-at and picked-upon automobile drive-in theatre, has really earned its present position the hard way, since the first project in Camden, N. J., some nine years ago. Theatre owners and the theatre industry at large didn't even concede a "show-me" attitude to the new idea, but militantly hamstrung and persecuted it. Taunted as a "necker's hangout" and "lover's lane", it is stated that it was impossible to procure any worthwhile features closer than nine months after the last prior run, and then only at prohibitive prices. Even today, although the normal drive-in theatre gets from 10c to 15c higher admission than its neighboring roofed competitor, and often pays a higher film rental, it must play a subsequent run.

If it hadn't been for the stubborn determination of R. M. Hollingshead, Jr., who originally conceived and patented the idea and structural features of the drive-in theatre, and the success which they were meriting in other more distant spots, the original Camden venture would have folded up more quickly than the 1937 date when it was dismantled and moved to Union, N. J. Don't forget, the Camden drive-in theatre was opened in the midst of the Great Depression. The industry was worrying about its ability to keep alive its normal brick and mortar theatres, and feared any possible unorthodox competitor. Also, Camden, which is a part of the great Metropolitan Philadelphia area, was, and is, a tough competitive spot with many interlocking clearance set-ups. This is no apology for Camden. As the only "failure", it taught the designers much they needed to know. This is just a review of the conditions which surrounded its lack of success.

The same theatre, in its new location, has been a financial success ever since the day it opened.

BASIC HOLLINGSHEAD PATENT (U. S. Patent No. 1909537) covers principally the car-tilting or car-aiming ramp elevations and inclinations as they relate to the position of the car, and therefore to the screen vision of the occupants through the normal car windshield; also to the non-obstructing entrance and exit of cars. Through a considerable investment in engineering brains, and the normal application of the trial-and-error method, these patents are claimed to embrace most of the design principles that can produce trouble-free construction. With the exception of Union, N. J., it has been the policy of the owners of the Hollingshead patents to sell franchises for definite territories to responsible exhibitors, and to stay out of actual exhibition themselves. A set price of $1000 as a franchise fee and a continuing five percent of the gross income as a royalty fee have been found adequate to compensate the patent owners, and actually protect the investor against any infringing competitors in his particular franchise territory. Several test cases have upheld the validity of the patents, so this protection seems an important consideration.

Several more recent patents, such as the "Drive-over" ramp design and manhole speaker grilles, have kept pace with the constant improvements in speaker and sound distribution methods worked out by RCA and other companies, and enlarged the adaptability of the basic patents to increased car capacities and greater patron comfort.

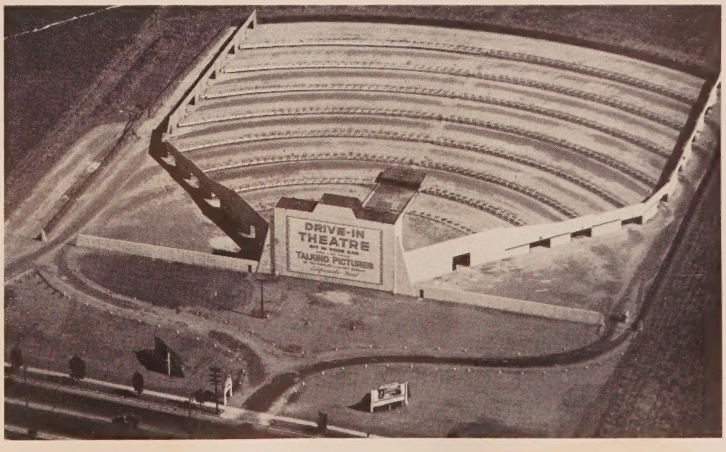
AFTER THE Camden "failure", the present wide acceptance was not a rebirth of the idea, but a steady growth that was firm and decided. In 1934, the continuously successful Los Angeles theatre was opened; in 1935, one in Boston, Mass.; in 1936, one in Providence, R. I. and one in Lynn, Mass.; in 1937, one in Miami, Fla.; in 1938, five more in many sections of the country; in 1939, four more; in 1940, there were 20 new ones; in 1941, there were 25 new ones; and if war effort hadn't affected the supply of even the limited machines and metals which they require, it is stated that there would have been at least 50 additional ventures in 1942. And just keep it in mind, that except for the initial Camden one, the patent owners claim that there hasn't been a single failure using their patents.

In many ways the operation of the average drive-in theatre parallels that of its roofed brother theatre. It runs two shows each night. More than 50 percent run a single feature policy with the usual complement of shorts and news reels, while the balance run double features. True, on and around June 21, which is the year's longest day, and when the show cannot start until 9:05 P. M., it may be found necessary to cut out some shorts or repeat only one of the double features. Other than that simple element of daylight, however, they are alike.

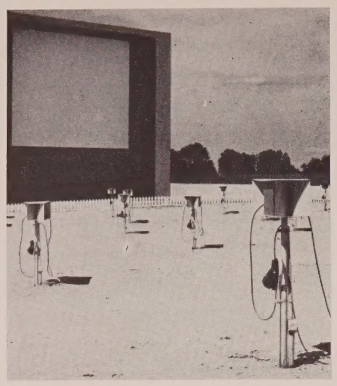
A roofed theatre sells tickets in ones and twos; but experience has proven that when a car pulls into a drive-in theatre there are two and three-quarters admissions per car.

The "seating capacity" of the average drive-in theatre is approximately 450 cars, with exceptions such as one in Birmingham, Ala. with only 150 car capacity, and one in Chicago with over 1000 car capacity. You can apply the two and three-quarter patrons per car to the above, to ascertain what is represented by a "full house". As a matter of fact, it is claimed that the current tire shortage is increasing the number of occupants per car.

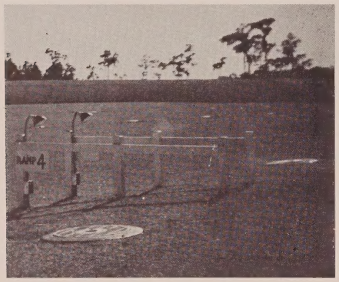
The average drive-in theatre requires from eight to 12 acres of land, and contains from eight to 11 radial ramps. A



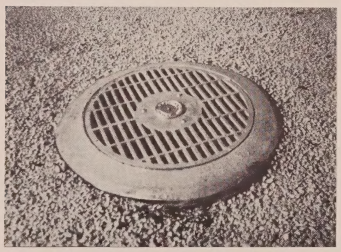
The nation's oldest Drive-in Theatre continuously in the same location is on Pico Boulevard, Los Angeles, Cal., where it has been continuously successful for eight full years. In construction order is was actually second to the Camden, N. J. venture which was later moved to Union, N. J.



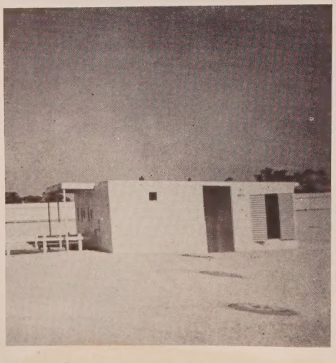
A "drive-over" ramp with individual car speakers racked in pipe standards as used by George Wilby Associates in Charlotte, N. C.



The use of speakers between each two cars and placed underground behind metal gratings, eliminated some driving hazards.



A close-up of the metal grating speaker.



A typical projection and toilet room building as used by the Sparks Circuit in Tampa, Florida.

300 car one in the south will cost without ground about $30,000, and in the north about $40,000. A 500 car one will cost $50,000 to $60,000, etc.

Building materials necessary to their construction are mainly lumber, concrete, earth, crushed stone or cinders, and possibly a tarvia mix to give a permanent top dressing to the ramps and driveways. All are relatively available products even under the present wartime restrictions. An exhibitor knows best whether he has or can get sound and projection equipment. The only shortage at present is in the copper wire necessary for sound distribution and lighting. As a 500 car capacity theatre, using ramp or individual car speakers, would need nearly two miles of sound cable, this is a major current consideration.

The two major structural portions are the screen pylon and the projection booth. The former can be built of cinder block, steel frame, and wood; or telephone poles with wood nailed to them. It is normally 65 to 75 feet high, with the bottom of the screen 18 to 20 feet above ground level. As it must present a flat, solid surface on which the screen is painted and masked, wind is the major structural requirement of strength.

The projection room must be large enough to house properly the high intensity lamps, projection machines, generators, etc. necessary to a 200 to 250 foot throw. For the normal theatre, this throw and a pair of four inch to four and one-half inch lenses have been found to produce the best results. As the center of the ampitheatre, the building which houses the projection equipment has been found the best place for ladies' rooms, men's rooms, and also the very profitable candy, hot dog, and other concession stands. Machine vending, sales stands, and even uniformed boys working among the cart-tilting ramps have been found suited to various locations, but all find the projection building the most practical center of activity.

No lights are used before or during the show except the ushers' signal flashlights. For use at the "show break", flood lights mounted above the screen pylon or at the corners of the field have been found to provide the best few minutes of thorough lighting, and to prevent accidents.

THE THEATRE PERSONNEL usually consists of a manager, cashier, watchman, ushers, and an operator or operators, dependent on union requirements. While a 500 car theatre will only need eight ushers after it is well established, it may require 12 ushers when it first opens, and until the patrons actually "learn the ropes" of how to place their car and accommodate themselves. One or two ushers must be assigned to the cashier's booth to handle the money between the cashier and the cars, and therefore speed up the entrance. As in every other theatre a "stand out", if too large, will discourage potential patrons, so it should be handled as quickly as possible. The watchman, of course, is a daytime employee, who rakes up papers and pop bottles, and generally keeps the theatre tidy.

The all-important car-tilting or car aiming ramp constructions are of two general types. The *Bulkhead* ramp has a perpendicular front varying in height, and therefore in rear slope in accordance with its position in the ampitheatre. It requires a total of 45 feet from perpendicular front to perpendicular front to permit cars to be driven on at the proper angle to the screen, and backed off and turned. The *Drive-Over* ramp, while attaining the same angular car-aiming adjustments, eliminates the perpendicular front, and substitutes a front slope gradual enough to permit the car to drive over the peak to exit. As a result it requires as little as 36 to 38 feet from peak to peak, which boosts the number of ramps to any given lot, and therefore boosts the car capacity of the theatre.

As stated earlier, some of the greatest developments have taken place in the sound distribution methods.

In the original effort, the method of placing the speakers behind a perforated screen was followed. As this cut down both the picture brightness and the sound volume, it was soon changed to a solid screen, with the speakers at the top or sides blasting out sound which it was hoped would reach to the inside of the cars on the farthest ramp. The variance between sight speed and sound speed was inadequately adjusted by focusing for perfection at the center ramp, and the fellow in the front or at the back was conscious of a slight lack of synchronization. This brought on the distributed speakers mounted on pipe frames at the ramp.

While the latter are adequate to good sound distribution, the success and growing income of each new installation indicated that the patrons wanted the best possible sound. As a result, directional speakers were mounted on concrete standards between each two cars on every ramp; and on drive-over ramps speakers were placed under ground behind metal gratings between each two cars, thereby eliminating an obvious driving hazard and possible dented fenders.

The last, and most important, development were the individual car speakers, either with or without a volume control which would adjust the sound to the particular patron's likes. Because of the intimacy which they produced by having the actor speak or sing right there in the car, and because of the absence of echoes or interference of any sort which made the sound even superior to most roofed theatres, they were an instantaneous hit. Methods of handling them were to either mount them on standards at the ramp,

A modern "marquee" pylon using the same changeable, silhouette sign letters as its roofed competitor.

and hang one on each car as it parked, or to give one to each car at the cashier's booth with a plug to insert in a socket at the ramp, requiring its return as a "pass out check" at the exit. The individual attention was the drawing card, and not the method applied.

For drawing area, the normal drive-in theatre works on a radius of upwards of 25 miles. A main, local highway is a help, but is not an absolute necessity. About 80 to 90 percent of all the patrons are residents of that area who leave home with the avowed intention of going to that particular theatre, and only 10 percent to 20 percent are people who are out driving and casually decide to drop in.

THE CAR OWNER PATRON is also not generally a 10 cent or 15 cent bargain hunter. The average drive-in theatre admission is 25 cents to 40 cents, with some accepting children under 12 years old for 10 cents, while others require the adult admission for all. And it is stated that the kids are one of the most important "reasons-for-being" of the drive-in theatre.

Experience has proved definitely, and surveys seem to verify it, that 30 percent of all drive-in patrons have small children in the car who sleep on the back seat while Mom and Pop watch the show. People without servants to mind the children still want to see a movie. In the normal roofed theatre they don't like to bring the children, stand, and wait for seats, be embarrassed by having a child occupy one of the few seats, or cry during the performance. They will also have to wake it to take it home, and perhaps have the job of carrying it there. In the drive-in theatre, their kids can only annoy themselves. They will probably settle down in the back of the car and fall asleep, and may still be that way when the car is put in the garage for the night. It makes sense, doesn't it?

IT IS BELIEVED THAT another big percentage of patronage comes from the very fat folks who aren't comfortable in a 20 inch chair; the old, whose bones creak everytime someone getting into the row forces them to stand up; and the crippled, who can't navigate in crowds, and who are embarrassed by a wheelchair and attention; that is, if one is a good enough showman to provide them. In times of epidemics of infantile paralysis or other scourages, the drive-in theatre has another advantage. Lots of parents won't take their children into an enclosed room with hundreds of people; but they will sit in their car in the open air with a minimum of worry.

Certainly, there is a limited amount of "necking" or head-on-shoulder postures; but don't theatres have that too? If a couple have that in mind, and only that, they aren't going to pay the drive-in theatre operator 80 cents for the privilege. Why, that amount of money will buy enough gas to take them 40 miles. And certainly within that distance they can find a dark farm lane or park drive where they will be much more private than when parked within inches of cars on either side of them.

From the foregoing it certainly seems that the drive-in patron comes to see the show; and does it with projection and sound, together with personal comforts, that may be better than that provided by many roofed theatres. He's willing to even pay a little bit more for the privilege—but he is the reason why drive-in theatres are "on the up".

Certain definite limitations of dusk-to-closing show hours and the change of the seasons will restrict their expansion; but drive-in theatres are building a patronage all their own, and seem to have their definite place in the industry's scheme.

Just before sun-down, the early arrivals get the better central locations. Note the unobstructed "drive-over" ramp combined with large horns over the screen.

CURRENT DRIVE-IN THEATRES BY STATES:

Alabama
- Auto Movies Amusement Company, Birmingham
- Auto Movies Amusement Company, Montgomery

Arizona
- Phoenix Drive-In Theatre, Phoenix
- Tucson Drive-In Theatre, Tucson

Arkansas
- North Little Rock Drive-In, Route 70, North Little Rock
- Pine Bluff Drive-In Theatre, Route 65, Tampo Pike, Pine Bluff

California
- Pico Drive-In Theatre, Pico Boulevard, Los Angeles
- Orange Drive-In Theatre, 101 Highway at Placentia Avenue, Santa Ana
- San-Val Drive-In Theatre, San Fernando Road at Winona Road, Burbank

Connecticut
- College Open Air Theatre, Middletown
- Milford Drive-In Theatre, Boston Post Road and Cherry Street, Milford

Florida
- Jacksonville Drive-In Theatre, Beach Road, Jacksonville
- Miami Drive-In Theatre, Northwest 7th Avenue at 19th Street, Miami
- Orlando Drive-In Theatre, Orlando
- Pensacola Drive-In Theatre, Pensacola
- St. Petersburg Drive-In Theatre, St. Petersburg
- Tampa Drive-In Theatre, Tampa

Georgia
- Augusta Drive-In Theatre, Augusta
- Piedmont Road Drive-In Theatre, Piedmont Road, Atlanta
- Macon Drive-In Theatre, Inc., Jeffersonville Road, Macon
- Savannah Drive-In Theatre, Savannah
- Stewart Avenue Drive-In Theatre, Stewart Avenue, Atlanta

Illinois
- Illinois Drive-In Theatre, Waukegan and Gulf Roads, Chicago
- Drive-In Theatre, North Shore, Chicago
- Morton Grove Drive-In Theatre, Morton Grove

Indiana
- Drive-In Theatre, Pendleton Pike, Indianapolis
- Drive-In Theatre, Route 67, Indianapolis
- Park-In Auto Theatre, 13th at Poplar Street, Terre Haute

Kentucky
- Drive-In Theatre, Louisville and Shelbyville Road, Louisville

Louisiana
- Drive-In Theatre, Canal Boulevard, New Orleans
- Shreveport Drive-In Theatre, Shreveport

Maryland
- Open-Air Theatre, Governor Ritchie Highway, Baltimore

Massachusetts
- Dartmouth Auto Theatre, Fall River and New Bedford, Fall River
- Lynn Open Air Theatre, Lynn
- Riverside Park Drive-In Theatre, Springfield
- Merrimack Park Drive-In Theatre, Route 110, Lawrence-Lowell Boulevard, Methuen
- Salisbury Open Air Auto Theatre, Route 1A, Salisbury
- Saugus Drive-In Theatre, Newburyport Turnpike and Route 1, Saugus
- Shrewsbury Drive-In Theatre, Boston Worcester Pike at Route 9, Shrewsbury
- Sturbridge Drive-In Theatre, Sturbridge
- Weymouth Drive-In Theatre, South Shore Road and Route 3A, Weymouth

Michigan
- Drive-In Theatre, Eight-Mile at Coolidge Highway, Royal Oak
- West Side Drive-In Theatre, Eight-Mile at Schaefer Street, Detroit
- Eastside Drive-In Theatre, Harper Street at Seven Mile, Detroit

Mississippi
- Paramount-Richards Enterprises, Inc., Vicksburg Highway 80, Jackson

Missouri
- Drive-In Theatre, East Prairie
- St. Louis Drive-In Theatre, Manchester Road, St. Louis

New Hampshire
- Berlin Drive-In Theatre, Milan Road, Berlin
- Pine Island Park-In Theatre, Manchester

New Jersey
- S. and G. Theatres, Inc., Route 29 at Chestnut Street, Union

New York
- Drive-In Theatre, Schenectady-Albany-Amsterdam Roads, Albany
- Hellman's Auto Drive-In, Lathams Corners, Albany
- Drive-In, Theatre, Niagara Falls Boulevard, Buffalo
- Sunrise Auto Theatre Inc., Valley Stream, Long Island

North Carolina
- Charlotte Drive-In Theatre, Wilkinson Boulevard, Charlotte
- Durham Drive-In Theatre, Hillsboro Road, Durham
- Greensboro Drive-In Theatre, Greensboro

Ohio
- Auto Theatre, Route 2 and 224, Creston
- Boyer's Auto Theatre, Navarre
- Eastside Drive-In Theatre, Route 8, Cleveland
- Westside Drive-In Theatre, Prook Park Road, Cleveland
- Drive-In Theatre, Montgomery Pike, Montgomery
- Bluebird Auto Theatre, Greentown
- Starlight Auto Theatre, Akron
- Riverside Auto Drive-In Theatre, 5800 Riverside Drive, Columbus
- Drive-In Theatre, Toledo
- Lake Erie Drive-In Theatre, Maumee
- LaVerne Drive-In Theatre, Warren

Pennsylvania
- South Parks Drive-In Theatre, Pittsburgh
- Sky-Way Theatre West Lake Road, Erie
- 7th Street Drive-In Theatre, 7th Street, Allentown
- Kishacoquillas Park, Lewistown
- Drive-In Movies, Evergreen Park, Hazleton
- Drive-In Theatre, North Main Street, Providence

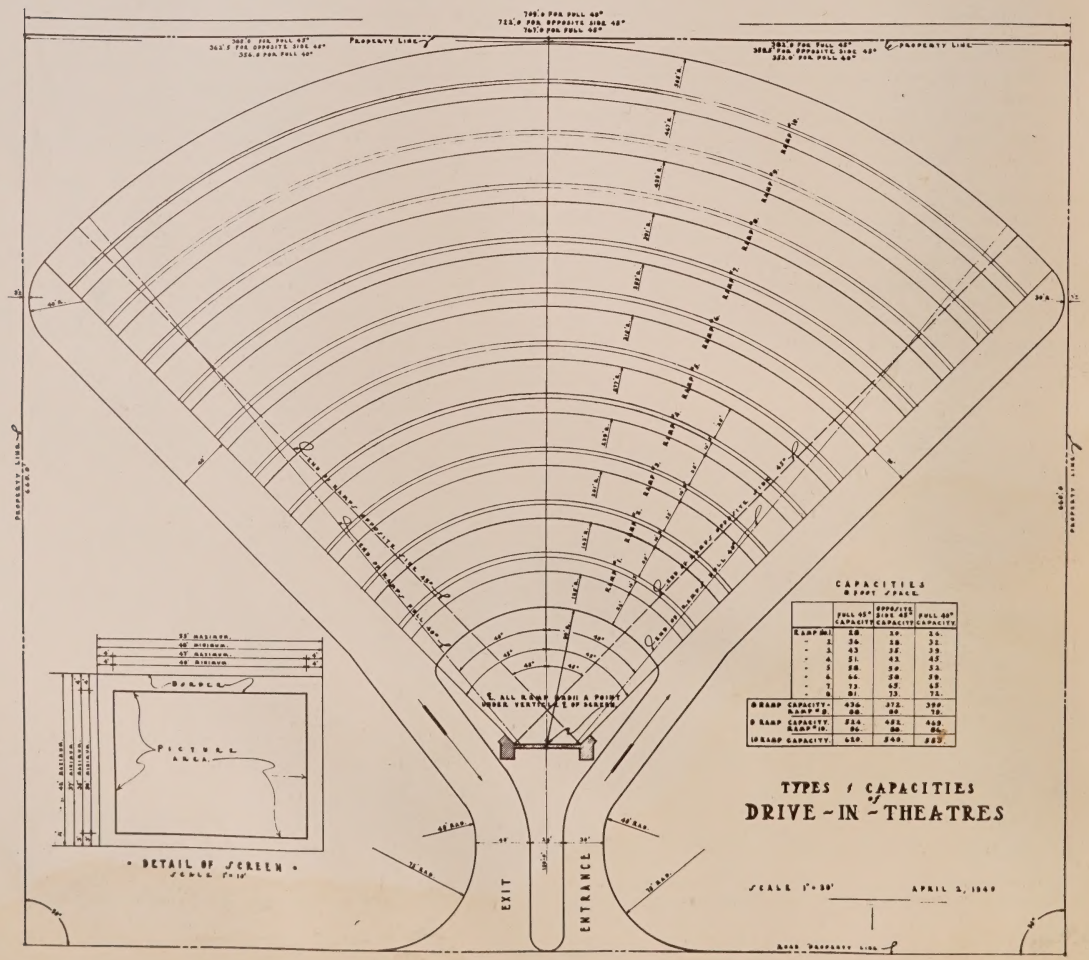
South Carolina
- Drive-In Theatres of S. Carolina, Inc., Garners' Ferry Road, Columbia

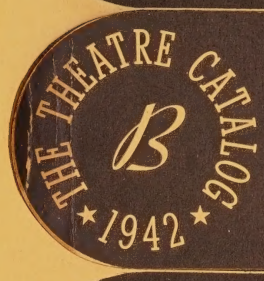
Tennessee
- Drive-In Movies, Lamar Ave., Memphis
- Met-N-Mo V, Jackson

Texas
- Drive-In Theatre, Austin
- Rio Grande Valley Drive-In Theatre, Alamo
- Texas Drive-In Theatres, Inc., Highway No. 9, Corpus Christi
- South Main Drive-In Theatre, Houston
- Northwest Highway Drive-In, Dallas
- Fort Worth Drive-In, Fort Worth
- San Antonio Drive-In, San Antonio

Virginia
- Open-Air Theatre, Bowling Green
- Delmar Drive-In Theatre, Delmar
- Drive-In Theatre, Williamsburg
- Mt. Vernon Open Air Theatre, Route 1, Alexandria

Wisconsin
- Drive-In Theatre, Blue Mound Road, Milwaukee





Theatre

Interiors

THUMB-DEX
Patent No. 1579573

Seat Upholstering Fabrics

WEARING QUALITY, SERVICE POTENTIALS

Not guesswork or observation, but the results of actual scientific tests are here outlined for the theatre executive's guidance.

by F. J. Van Slooten

CAREFUL SELECTION of upholstering fabric is of three-fold importance to the theatre chair buyer. Covering material usually represents the largest single item of expense in the cost of the chair. It is a leading contributor to the total decorative effect of the entire chair. It is also less durable than other parts, and therefore one which is most likely to show first the effects of service. For these reasons, the necessity for careful selection of upholstery fabrics from available materials is unquestioned. The buyer of theatre chairs, therefore, should have some means of evaluating the various types of fabrics available to guide him in his choice, and to provide a positive and accurate analysis of service potentialities of the fabric.

Unfortunately, it is impossible to furnish a simple set of rules by means of which a prospective buyer of upholstering fabrics can judge the wearing qualities of the material and obtain an answer which can be computed in years of service. There are so many factors which must be taken into consideration, not the least of which is price, that the determination of serviceability is best accomplished by means of mechanical tests. Mechanical tests eliminate the variable factors of human judgment, and comparative ratings become the sole basis for measuring the wearing qualities of the fabric. This idea of comparative rating through mechanical tests in conjunction with years of field experience is the nucleus from which has grown the present day research facilities and testing equipment of the American Seating Company. Tests have been developed which simulate in accelerated and intensified form the abuses to which the product is exposed during years of service.

THE PURPOSE OF THIS ARTICLE is to point out to the buyer of theatre chairs a few of those factors that influence the wearing qualities of upholstering materials and have vital bearing on serviceability. The term "fabric" as used in this article include those materials referred to in the trade as mohairs, velours, and similar pile coverings, and does not refer to coated fabrics commonly termed imitation leather and simulated leather. These will be discussed in a later article. The assumption will be made that the reader does not have an intimate knowledge of the construction of various types of fabrics, and only occasionally is faced with the problem of selecting upholstery. Obviously, he wishes to obtain the covering material which represents the best in value, or which, in other words, combines maximum wear resistance with desired decorative qualities which are obtainable within a specific price range. Let us begin, therefore, with a discussion of the various tests conducted in the laboratory and their relation to field performance.

Upholstering materials are tested for surface wear resistance, edge wear resistance, strength and stretch characteristics, color fastness, pile anchorage, and marking or matting tendencies. An analysis of the fibre content is made and the thread count and weight are noted. Too, each shipment of upholstery fabric is sampled, and these pieces are tested for color fastness, pile anchorage, thread count and, periodically, for edge wear resistance. In this way, it is possible to detect and reject sub-standard material, and to insure the use of only those lots which meet the established standards for acceptable upholstery materials.

A high degree of resistance to surface wear is necessary if the fabric is to render satisfactory service on a theatre chair. The term "surface wear" applies to the deterioration on flat areas of a theatre chair back and seat. The fabric must resist wear without showing loss of pile or becoming shabby. Resistance to surface wear is tested in the laboratory by covering a flat block with the fabric to be tested and rubbing the surface of the material with a weighted second block covered with sateen or duck. After the measured number of strokes or wear cycles have been completed, the resistance of the fabric to surface wear is judged on the basis of standards that have been established for satisfactory performance.

EDGE WEAR RESISTANCE is also an important property that theatre chair upholstery must possess if satisfactory service is to be assured. This test measures the ability of the fabric to withstand wear that is concentrated within relatively small areas at the edges of the seats and backs. It is in these areas that the covering material passes over the edge of the spring-supporting seat board and over the top edge of the back panel. Here, the covering is subjected to pressure and abrasion by the legs and arms of patrons. When inferior fabrics are used, early failure is likely to occur at these points. Resistance to edge wear is tested by stretching the fabric sample over a round steel bar of small diameter. A rubbing block, upholstered with duck or sateen, is moved back and forth across the bar.

Strength and stretch characteristics in upholstery fabrics also have bearing upon service life. If a fabric does not possess sufficient strength to resist tearing, it is quite likely that failures may occur. To obtain a neatly tailored chair back or seat, it is necessary to stretch the covering material quite tightly during the upholstering operation. In use the cover is subjected to further stretching. Rupture or tearing of the fabric may occur unless it is able to absorb this additional strain. When the chair is unoccupied, the fabric must return to its original form if a neat appearance is to be retained. The combined properties of sufficient strength and stretch are of considerable importance if a fabric is to render satisfactory service. In the laboratory, samples of the fabric to be tested are clamped in the jaws of a tensile testing machine. As the jaws move apart, a line is drawn mechanically on a calibrated chart. The graph obtained provides accurate data on the strength and stretch characteristics of the fabric.

THE COLOR FASTNESS TEST indicates whether the dyestuff used in a piece of upholstery fabric will be transferred to clothing or other materials with which it may come into contact. Some fabrics have been found to be satisfactory from the standpoint of crocking or transfer of color when there is little or no moisture present. These same fabrics, however, may show a noticeable crocking when tested at body temperature and with high moisture conditions. Although air-conditioning has been adopted almost universally by upholstered theatre chair owners, heat and moisture conditions still must be contemplated when color fastness tests are performed, because in warm weather a patron's clothing may be somewhat moist from perspiration. In the laboratory, these conditions are duplicated by using a synthetic perspiration solution and by performing the tests under controlled conditions of heat and pressure. A test cloth saturated with the perspiration solution is laid upon the face of the fabric that is to be tested. These are then placed in a warm oven, and pressure is applied to insure contact of the two fabrics. After sufficient time has elapsed to permit evaporation of the perspiration solution, the

samples are removed and inspected. The amount of color that has been transferred to the testing cloth is an indication of the color fastness of the material. Even rubbing the surface of the fabric with a cloth moistened with water will reveal to some extent the degree of color fastness.

It is interesting to note that crocking does not affect all fabrics alike. Some dyestuffs will show crocking only in contact with cotton, while others will affect only wool or silk. For that reason, many laboratories check color fastness with samples of all types of cloths. Others test for color fastness with Union Cloth, which is woven in alternating bands of wool and cotton threads, thus permitting a simultaneous check for both fibres. Fugitive colors should be avoided because of expensive claims that may follow damage to patrons' clothing.

PILE ANCHORAGE has become increasingly important because of progressive changes in theatre chair comfort and construction. The old types of upholstered theatre chairs usually had a thinly padded back and seat. With this type of construction, the upholstery fabric was drawn tightly over the padding, and this pressure against the reverse side of the covering material prevented escape of the pile tufts. In recent years, however more emphasis has been placed on the patron's comfort and, as a result, chairs with luxurious spring backs and seats are now widely used. The construction of the softer backs and seats does not provide sufficient pressure to reinforce the pile anchorage of the fabric. Repeated flexings of the covering may allow the pile tufts to work out through the back of the material unless they are properly anchored. Pile anchorage may be checked by a rather simple test. Stretch a sample of the fabric tightly between the hands and rub the ends of the pile tufts with the ball of the thumb or tip of the forefinger. Poor pile anchorage can thus be detected. If the pile tufts push out through the reverse side of the fabric, anchorage is inadequate.

Resistance of the pile to marking or matting, while not strictly a requisite for satisfactory service, is a desirable characteristic, for it means that the fabric will maintain its original appearance for a longer period. Many of the cut pile fabrics made from softer threads crush and mark readily unless they are of highest quality and possess a large number of pile tufts per square inch.

THERE ARE THREE TYPES of upholstery fabrics which are popular today, and these fabrics differ greatly in construction. These fabrics are referred to commonly as cut pile fabrics, frieze or boucles, and flat fabrics. A cross-sectional drawing of a cut pile fabric is shown in Fig. 1. Three groups of threads are used in weaving this fabric. The warp or backing threads run parallel to the length of the fabric. The filling threads run at right angles to the warp threads. The third set of threads shown in the sketch is known as the pile threads referred to more commonly as the pile tufts. The pile tufts form the wearing surface of the fabric. In weaving a material of this type, the pile tufts are located between the warp threads, and secured in place by the fill threads. Both warp and fill usually are cotton. The pile threads may be cotton, mohair, rayon, wool or synthetic threads, or a combination of two or more of these.

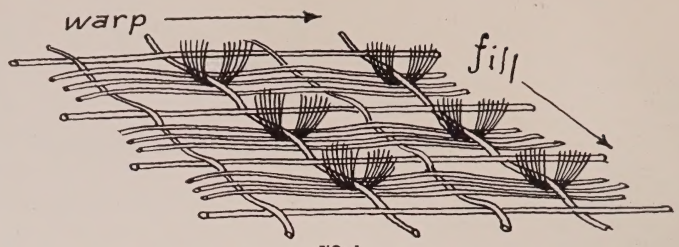


FIG. 1

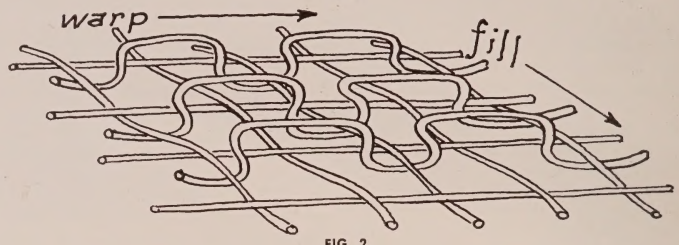


FIG. 2

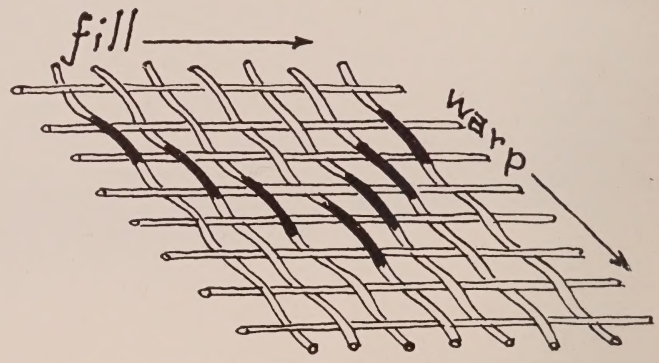


FIG. 3. Darkened portions show how variation of weave creates pattern.

The least noticeable part of a fabric is undoubtedly the backing or foundation upon which the fabric is woven. They are important not only for this purpose, but they also contribute strength to the material and support the wearing surface.

Fig. 2 shows a cross-sectional drawing of a frieze or boucle type of fabric. Here again we see warp and fill backing threads similar to those in Fig. 1. The frieze or boucle fabric differs from cut pile type in that the pile threads are not cut at the top surface or face of the fabric, but are woven in a continuous or connected manner. Fabrics of this type are often referred to as "loop pile fabrics".

A third type of upholstery fabric is illustrated in Fig. 3 and this is known as a flat fabric. Flat fabrics may be of various patterns or may be plain. Some of the more decorative flat fabrics are tapestries and brocatelles. Here again, the warp and fill threads are similar to those of the cut pile and loop pile fabrics, and the surface threads are woven into and supported by them.

THESE DESCRIPTIONS of the various types of fabrics are by no means complete. There are many possible variations of these basic fabrics commonly used for upholstering purposes. Nor is the weave or type of fabric restricted to plain cut pile, loop pile, or flat fabric. Here again, it is possible to combine two or three types of weaves into a single fabric. It is these variations in types of threads and types of weaves which are responsible for the innumerable attractive patterns and textured effects displayed in the textile market.

In the cut pile type of fabric, there are two common weaves—known as the "V" weave and "W" weave. These designations are determined by the shape of the pile tuft. In the "V' weave each single pile tuft passes under only one fill thread, and is shaped similar to the letter "V". In the "W" weave fabric, Fig. 4, the pile tufts first pass under one fill thread, cross over the top of the next, and again pass under a third fill thread before returning to the face of the fabric. Each pile tuft is in the form of a "W". Herein lies the distinction and difference between these two types of cut pile fabric weaves. The "V" weave has been used successfully for many years in the manufacture of cotton pile fabrics such as plain and jacquard velours. But this type of weave was found to be unsatisfactory for pile fabrics made from mohair, rayon, and other pile threads because the pile tufts could not be held securely in the fabric by a single fill thread. In other words, the mohair and rayon pile tufts were too stiff and slippery, and could be pushed out easily through the back of the fabric. A supporting means of anchoring the pile tufts had to be developed for pile fabrics of this type. This weakness was overcome by the "W" weave fabric. In this weave, the pile tufts are anchored securely by three fill threads, the middle one of which prevents escape of the pile through the reverse side of the fabric. One method for supporting tuft anchorage in "V" weave fabrics is the application of a latex or rubber coating to the reverse side of the cloth. This latex coating adheres to the backing threads and to the portion of the pile tufts that is exposed on the reverse side. A double backing also may be used to obtain satisfactory anchorage of "V" type pile fabrics. In a fabric of this type, a separate set of warp backing threads is employed. These are woven into the fabric, and cover those portions of the pile tufts which are exposed on the reverse side. A weave of this type is illustrated in Fig. 5. A cut pile fabric of cotton pile usually does not require a rubberized back or double backing to provide satisfactory anchorage of the pile tufts since the cotton pile threads are less stiff, and have a tendency to mat or spread when pressure is applied to the face side of the pile tufts. This matting prevents escape through the backing of the fabric. Satisfactory pile anchorage thus is achieved in the better qualities of cotton velours.

FLAT FABRICS do not possess the wear resistance of pile fabrics because wear is concentrated on the comparatively small area of threads in the face of these materials. Theatre chair usage is five to 15 times more severe than that to which upholstered furniture is subjected in the home. Unless unusual decorative effects are sought, which can be achieved only by use of tapestry or similar flat fabrics, these materials usually are not considered suitable for use on theatre chairs. A few flat fabrics have given years of service on theatre chairs, but these cases are exceptional. In general, satisfactory flat fabrics are considerably more expensive, and at best do not possess the wear resistance of cut or loop pile fabrics.

We have mentioned a number of means by which quality and service potentials of fabrics may be judged, and have had occasion to compare their durability in service. Field surveys and tests have been conducted to substantiate laboratory findings. But the buyer of upholstering fabrics for theatre chairs wishes to know what characteristics distinguish the wheat from the chaff without performing laboratory tests and without use of special equipment. He also wishes to know what precautions can be taken to insure purchase of a fabric that will represent a good value not only for wear resistance but for decorative effect as well. Unfortunately, as we stated before, there are no simple tests which can be used to provide a conclusive answer to these questions. There are certain facts, however, which should be pointed out and which should be considered at the time of selection of upholstering materials.

IN EACH CASE, the selection of a fabric must be determined upon the basis of service requirements. The hours of operation of the theatre or auditorium must be taken into consideration, for obviously the number of years of satisfactory service is dependent primarily upon this factor. A school auditorium which is perhaps used only a few hours each week will not require a fabric possessing the wear resistance needed in a theatre operating 16 or 18 hours each day. For this reason, in a school or church auditorium, serviceability is often sacrificed in order to achieve a particularly desired decorative effect. To sacrifice wearing qualities in a theatre chair fabric however, is not recommended. In recent years emphasis has been directed toward combining decorative qualities with durability by providing fabrics which satisfy both requirements.

There are many fabrics available today which fulfill the requirements for long wear life, and which also provide interesting decorative effects. It has been mentioned that the fabric buyer may choose from many types of weaves and kinds of materials. He may select from plain fabrics, stripes, figured patterns, textured effects, and various combinations, or he may even choose to have a fabric woven specially for his own use. But in any case, price will receive a great deal of consideration, and in many cases must be the controlling factor.

There are some fabrics which inherently are less expensive than others because of lower raw materials costs and weaving simplicity. Even in abnormal periods of price fluctuation, such as we are experiencing at the present time, cotton fabrics are less costly than those made from mohair and rayon. Cut pile fabrics, either striped or plain, cost less to weave than loop pile fabrics of similar quality, and are therefore priced lower. Long wearing flat fabrics are usually found in the higher price brackets. Patterned fabrics such as jacquard velours and tapestries, require more complicated loom set-up, require more time for weaving, and generally, as a consequence, are more costly than plain or striped fabrics.

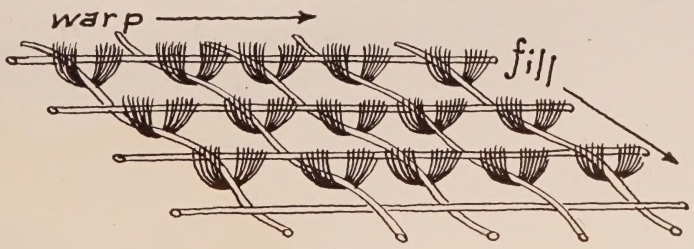


FIG. 4

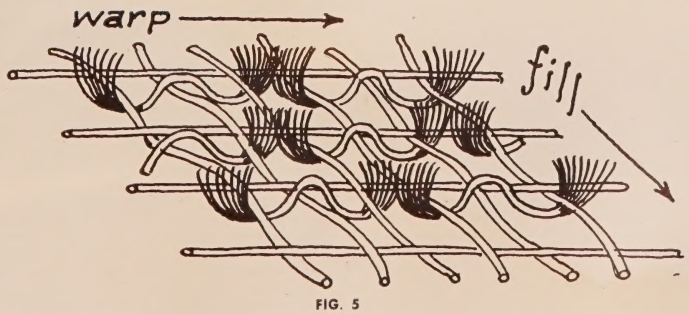
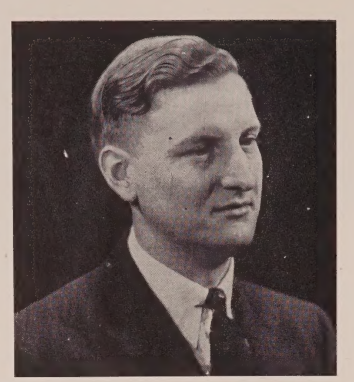


FIG. 5

GENERALLY speaking flat fabrics are considered satisfactory for use in the home where service requirements can be overlooked in favor of decorative features. Theatre use, however, demands consideration of the wear resistance of a fabric, and for this purpose cut or loop pile fabrics are more satisfactory. Cut pile fabrics or loop pile materials contain more fibres to resist wear. Loop pile fabrics of the high pile type are subject to catching or snagging, a condition that is not present in cut pile fabrics.

For an accurate analysis of the wear resistance and service potentials of any fabric it is necessary to resort to the fabric-testing facilities of a good laboratory. The purchaser of fabrics may examine materials and make some comparisons, but there are so many factors influencing service potentials that it is impossible to arrive at an accurate decision without access to adequate testing procedures. Pile anchorage and color fastness may be checked by rather simple tests previously explained and we would recommend that this be done.

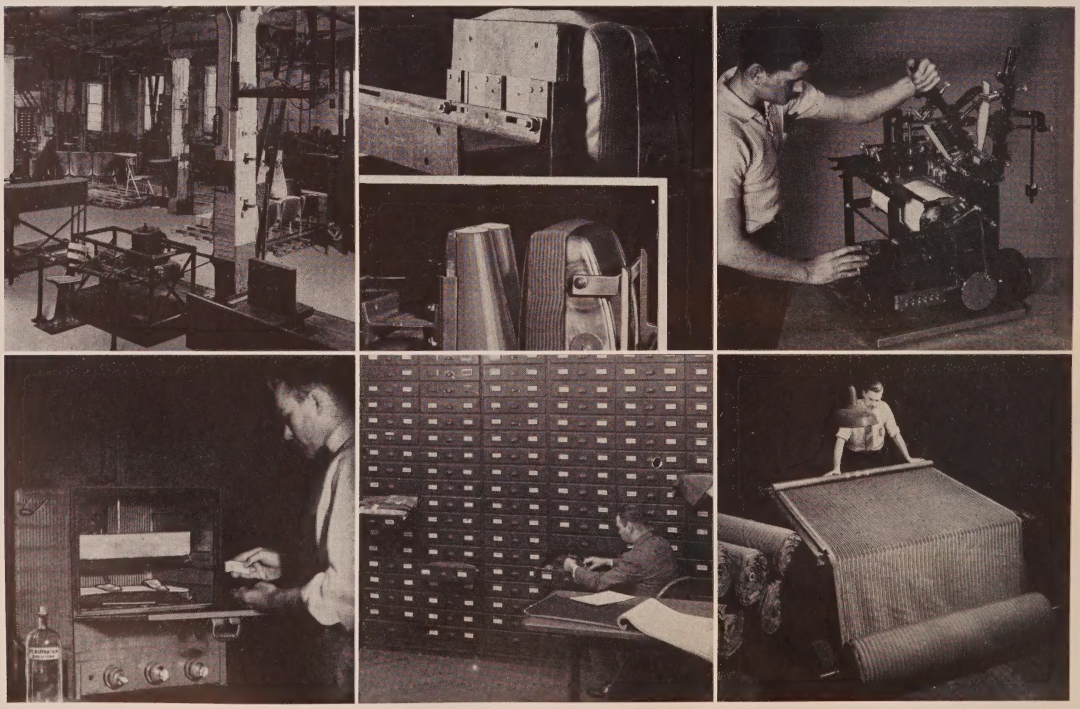
Deep shades of red are the most difficult to produce with satisfactory color fastness, and should always be checked for this characteristic. If there is evidence of considerable crocking by appearance of color on the rubbing cloth, it is wise to reject the fabric or to select another color.



Fred J. Van Slooten was graduated from the College of Engineering, University of Michigan, and has been with the American Seating Company for six years. He is a research engineer, and for the past three years has devoted most of his time to the study of textiles as related to public seating.

IN GENERAL, it has been found that for surface wear resistance and edge wear resistance, both cut pile and loop pile fabrics are superior to flat fabrics. The pile anchorage is an important point to be considered in the selection of cut pile fabrics, and this term has little or no meaning in connection with loop pile fabrics. Because of the construction of a loop pile fabric, escape of the pile through the back of the fabric is impossible. No general class of fabrics may be considered superior on the basis of strength and stretch tests nor color fastness, since there are many variations within each group, and these characteristics are dependent upon the quality and consideration of an individual pattern or piece.

IN CONCLUSION, let us likewise remember quality claims are as common as advertising and selling efforts. Many of these are sincere expressions of good intentions. Honest intentions and experience are both essential to reliable production. But experience teaches that neither experience nor the best of intentions can take the place of scientific investigation, testing and rigorous inspection as a means of eliminating defects and of progressively improving products.



RESEARCH, TESTING AND INSPECTING occupies the time of a large staff at the Grand Rapids factory of American Seating Company, and has developed the numerous findings here discussed by Mr. Van Slooten. (A) Is a view of the laboratory showing the special testing equipment that literally destroys the the products that other machines build. (B) This buttock shaped wooden form is a mechanical "sitter" which applies a load to the seat cushion which is equivalent to a heavy person sitting down. (C) Samples of upholstery material are held in fixed contact with an oscillating canvas drum and rubbed for many hours to determine the relative resistance of the fabrics under test to wear and abrasion. (D) The perspiration fastness test as applied to all woven and coated fabrics detects improperly dyed materials. (E) Samples which have been subjected to physical testing are indexed with their complete record and filed for future reference. (F) Every yard of upholstery material is re-rolled and inspected by sharp eyed experts for defects and uniformity of color.

FACTORS CONSIDERED IN DETERMINING

Desirable Seating

A leading authority on Sight Lines and Theatre Design discusses his findings regarding patron's comfort and choice of seating.

by Ben Schlanger

IT IS WELL WORTHWHILE for the exhibitor to know where, in the auditorium, the patron likes best to sit while viewing the screen performance. It is important that as large a percentage as possible of the seating positions be considered desirable for viewing the performance by the patron. At least 80% of the seating positions in any motion picture theatre auditorium should be, without hesitancy, considered a satisfactory and desirable seating position for the average patron. While an extremely comfortable chair may be inviting to the patron, its position in the auditorium may easily detract from its value if the viewing position is undesirable. There is no chair manufactured which can overcome the physical discomfort caused by the poor posture which has to be assumed from undesirable viewing positions. There is also no chair manufactured which can overcome the eye-strain experienced in sitting in poor viewing positions.

The basic means for insuring a maximum number of desirable viewing positions is found in the original horizontal and vertical shape planning of the auditorium. However, the quality of the sound and light projection of the motion picture may influence the desirability of a particular seating location to a certain degree, as for example, the intensity of screen light, amplitude of sound, and the size of the projected image may render seats which may ordinarily be considered too far from the projected image desirable by an increase in their values. However, viewing positions which are too far to one side of the projected image cannot be improved by adjustments in the projection mechanism. Of course, such increases may prove impracticable or have a harmful effect on other seating areas.

THE PROPER APPROACH to modern motion picture theatre design dictates that a careful relationship be made of: (a) highest efficiency of geometrical form of a seating design; (b) the limitations of the mechanical means of the projection of light and sound; (c) the limitations set forth for seeing and hearing as dictated by the physiology of the eye and ear. It may be asked whether or not it is worthwhile to make such a detailed study of all these factors in planning the motion picture auditorium. The answer is entirely controlled by the amount of efficiency which one cares to bring about in the design or use of the theatre structure. It does seem though that the high real estate, construction and maintenance, and operative costs warrant giving every possible consideration to increasing the efficiency of the viewing areas. There are some additional factors which will influence auditorium planning, such as emergency exit requirements, accessibility of seats with maximum of ease, and the auxiliary spaces which serve to make the entire theatre function as a unit.

It has been proven that for both economic and acoustic considerations a minimum number of cubic feet of auditorium volume per seat is desirable. It is fortunate that the maximum percentage of desirable viewing positions can be achieved in motion picture auditorium design when the above stated minimum cubical volume per seat is developed.

THERE ARE TWO IMPORTANT factors which control to a large extent the minimizing of the cubical volume and the efficiency in obtaining the maximum number of desirable viewing positions. These factors are:

1. The aisle arrangement of the seatting plan.
2. The design of the main floor slope and the pitch of any upper level seating tire or tiers which may be incorporated.

In the very earliest stage of motion picture theatre auditorium design, there is only one fact which is definitely established, and that is the seating capacity which is desired. There is one additional fact which has been a fixed item in most instances in the past, that of the shape of the plot of ground upon which the theatre structure is to be built. While the shape of the ground naturally would be a definite form in all cases, the tendency now is to use larger plots of ground because it has been proven that the average community motion picture theatre does not have to be located on costly ground, so that in most instances, the plot of ground seems to be large enough to allow complete flexibility in determining the shape of the theatre auditorium structure.

KNOWING THE SEATING CAPACITY desired, it is necessary to determine which would be the most efficient type of auditorium design which would best fit the capacity. The possible types are as follows:

1. The single aisle;
2. The double aisle, each aisle being against a side wall;
3. The double aisle, each aisle being on either side of the center bank of seats with seats existing between the aisles and the side wall;
4. The triple aisle, an aisle on the center line of the auditorium and an aisle against each side wall;
5. The triple aisle, the same as No. 4 with the exception that the walls are pushed out, thus permitting seats between the outer aisles and the walls;
6. The quadruple aisle, an aisle against each side wall and two other aisles so that three sections of seating are formed across the width of the auditorium.
7. The quadruple aisle, same as No. 6 with the exception that the side walls are pushed out, thus allowing seats to exist between these outer aisles and the walls.

EACH ONE OF THESE TYPES is further subdivided into additional types in accordance with the vertical disposition of the seating design as follows:

a. Single floor.
b. Single floor with stadium section.
c. Over hanging upper seating areas.

Most of the laws written governing the construction of motion picture theatres allow 14 seats in width between two aisles and seven seats between the side wall of the auditorium and an aisle as a maximum. In isolated instances, this number of seats is either decreased or increased by one or two chairs. In the various types of aisle arrangement schemes heretofore listed, schemes No. 1, 3, 5, and 7 are the most efficient because in each one of these cases there is a minimum of one aisle width to 14 seats. In the other schemes there are additional aisle widths needed without producing any additional capacity. Scheme No. 7 would rarely come into use for motion picture theatre design because of the extreme wide angle viewing positions created when more than 42 chairs are used across the width of the auditorium. Scheme No. 5, while being very efficient, is difficult to adapt because sufficient emergency exits cannot be developed along the side walls of the auditorium. Although scheme No. 3 is similar to

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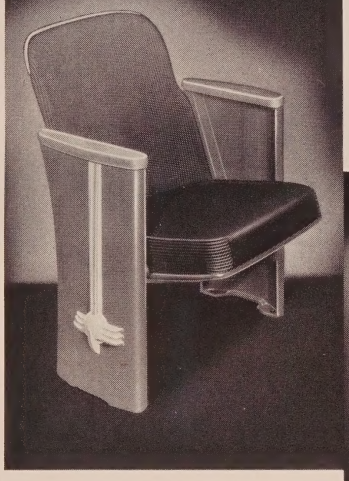

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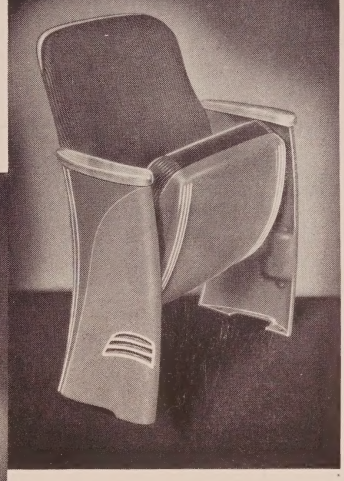

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scheme No. 5 in this respect, scheme No. 3 is adaptable because side wall exits are not required to the same degree due to the lesser number of seats across the width of the auditorium.

Schemes Nos. 1 and 2 are infrequently used since under proper design conditions they do not produce a capacity of more than approximately 400 seats unless an overhanging upper tier of seating is introduced. It will therefore be found that schemes Nos. 3 and 6 are the most widely used. It is important in both of these schemes whenever possible to have at least 14 seats between aisles or 7 seats between the wall and an aisle, and if the building code permits, this number of seats should be increased accordingly. The highest efficiency in aisle arrangement is important if a maximum number of desirable viewing positions are to be produced.

An interesting point of research is found in endeavoring to determine at which point to consider scheme No. 3 no longer efficient and adopt scheme No. 6. It is obvious that scheme No. 3, to begin with, is more efficient than scheme No. 6 since it produces 14 chairs in the width per aisle whereas scheme No. 6 produces 10½ chairs in the width per aisle. The point in question becomes how large a capacity can one force into the scheme No. 3 without creating a shape which is too elongated.

SCHEME No. 3 can accommodate a maximum of approximately 850 seats on a single floor plan. The use of an overhanging tier of seats designed for a maximum overhang of five rows in front of the last row of the main seating level will increase this capacity to approximately 1000 seats. Scheme No. 6 can accommodate a maximum of approximately 1300 seats on a single floor, with a possible increase of approximately 200 seats if a five row overhang upper tier of seats is introduced. It is therefore advisable to use scheme No. 6 only if at least 1100 seats are to be accommodated, since scheme No. 6 is not efficient until 1300 seats are to be accommodated.

By using the data given on Figure 1 and in the accompanying caption in conjunction with the suggestions made in the selection of aisle arrangement, it is possible to arrive at a practical and efficient form for the motion picture theatre auditorium. Additional research work is being contemplated by the Theatre Engineering Committee of the Society of Motion Picture Engineers so that a more refined study can be made of the desirable seating positions, but until such time as this research work is completed the data here given should prove of practical use.

Ben Schlanger was born 36 years ago in New York, where he was educated at Columbia University and the Beaux-Arts Institute of Design. He worked for various architects until 1926, when he started his own practice as an architect for buildings housing public assemblies, for educational, recreation and community purposes. He is chairman of the sub-committee on theatre design of the Society of Motion Picture Engineers, and has been a member of the SMPE since 1931. His personal research of the visual and auditory problems of auditorium design has been published, and his original work in creating auditorium floor slopes to supersede the strong downwardly pitched floor is now very widely used. Schlanger is a consultant to architects in the United States, Canada, Central, and South America. Among the houses he has designed are the Normandie, Jewel, Bell, New York; Whitney, Hamden, Conn.; Westville, New Haven, Conn.; Waldo, Waldoboro, Me.; Pix, White Plains, N. Y.; Pix, Rock Hill, S. C.; and Brockway, Brockway, Pa.

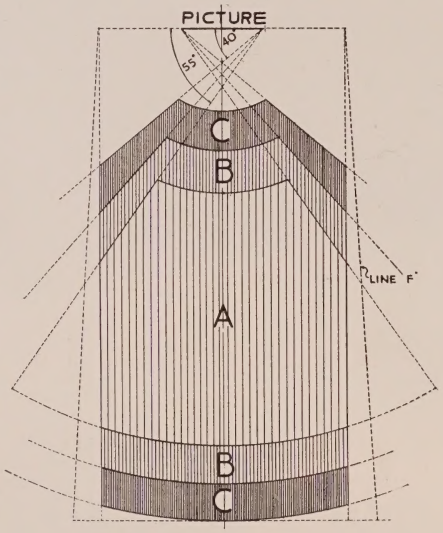

FIG. 1. Location of Desirable Seating Positions: The basic proportions of the form from the picture to the last row of seats and from the extreme side seats on one side to the opposite side, is one-to-two. The total seating width is three times the picture width. The seating position area "A" offers the best seating locations. While this "A" area might be further subdivided into different qualities, this area in its entirety has seating positions that are all desirable enough to cause them to be linked into one group. Note that there is a small triangular "A" area outside of the recommended side lines. The use of these triangular areas is not recommended because including them in the basic form would create a physical shape which becomes uneconomical structurally. However, where the additional structural cost can be allotted, the extreme side lines can be flared as shown on line "F". This would result in a worthwhile increase in desirable seating positions and also create non-parallelism of the side walls of the theatre, a feature which is acoustically desirable. Seating area "B" gives seating positions which have proved to be useful, but are not choice locations. Seating area "C" gives seating positions which are not recommended, but are usually resorted to in the average commercial project. Seating area "C" begins at a point away from the picture equal in distance to the width of the picture, and is outlined by a 40° angle subtended to the picture, as shown. Seating area "A" begins at a point distant from the picture equal to a dimension two times the picture width, and is confined to an angle of 55° subtended to the picture, as shown. Seating area "A" terminates at the rear, at a point distant from the picture equal to 5.2 times the width of the picture. The rear line of seating area "C" terminates at a point distant from the picture equal to a distance six times the picture width. Note that the total seating width amounts to three times the total picture width, a figure which agrees with an average found in an extensive survey made by the Society of Motion Picture Engineers for a similar location point.

★

Seat Installation Rules

THAT EXPERIENCE HAS PROVED BEST

How to plan your floor layout and how to install your theatre seats so they will deliver the longest use-life and satisfaction.

by W. A. Gedris

THE SUBJECT of the proper installation of theatre chairs is so vast that volumes could be written not only on its importance but on the details involved in gaining the desired end. I positively know that I voice the feelings of every chair manufacturer when I say that the importance of the proper installation of theatre chairs and the things essential to this can not be overly emphasized. It is no exaggeration to say that the finest chair in the world can be utterly ruined by a poor installation. Its intended comfort can be destroyed, and the life of the chair shortened, by at least one-half of its normal span of usefulness. There are, however, a few fundamentals that can be set down perhaps as the commandments for good installation. The adherence to these most important conditions will save many a heartache and headache for both the theatre owner and the chair manufacturer.

First and foremost, and above everything else, engage the services of the best architect available on theatre construction before even making a start. We would even go so far as to say that he should be consulted before a site is picked or the land purchased. At least preliminary talks should be held between the architect and the builder, and ideas exchanged at this stage.

We feel we are justified in saying that theatre chair manufacturers should be consulted before final plans are okayed for building. It is not necessary at that time to decide what chair one is going to use or what particular manufacturer is going to make the chair, but it is essential that one consult with the planning department of a reputable chair manufacturer to the end of getting the most out of the purchase of chairs regardless of whether one is paying little or much. Every first-class chair manufacturer maintains this planning department for the use of the builder and architect at no cost or obligation to them, and we do not hesitate to say that a great deal of money can be saved and mistakes avoided by these early conferences.

Up to this point we have spoken of only the new theatre. However, a remodeling job should come under exactly the same rules. So often we come on a job too late to remedy glaring mistakes that make for a bad installation. The only thing that can be done at this stage is to make the best of these poor conditions, and work around them at the least expense to the owner, and gain the best result possible under the existing conditions.

CLOSE ADHERENCE to the following suggestions will help immeasurably to giving a good chair installation:

As soon as the architect has completed the preliminary drawings of the theatre they should be submitted to a reliable seating company for suggestions regarding seating. The seating company will lay out preliminary seating plans, and suggest any changes that might be necessary for the proper installation of the chairs to insure the proper comfort and safety of the patron.

In laying out these preliminary seating arrangements, the seating company will take into consideration all local and state codes which would affect the seating layout, such as width of chairs used, spacing of chairs back to back, number of chairs in a section, width of aisles, location of cross aisles, number of aisle lights required, and all such details.

Also in laying out the preliminary plan, it is necessary to take into consideration which portion of the theatre affords the best vision. The sketch above (Fig. 1) shows the apportioning of the seating area into sections of excellent—good—fair and poor vision. There is, of course, no definite break between excellent and good vision. This is a theoretical line that is used to determine the most desirable seating areas of the theatre. In connection with the above apportioning of the theatre the visual size of the screen can be figured for any seat in the theatre. The sketch (Page 160, Fig. 2) shows the visual size of the screen from three different seats in the same row.

The distance from the screen to the first row of chairs should be one and four tenths times the width of the screen and to last row of chairs six times the width of the screen. The maximum width of the seating area should be three and five tenths times the width of the screen.

After the preliminary seating plans have been approved by the architect, the final seating plans are then drawn by the seating company. At this time, floor inclines are worked out. Every reliable seating company has methods of laying out sight lines and determining floor inclines. Likewise they can determine proper heights of loge and balcony risers.

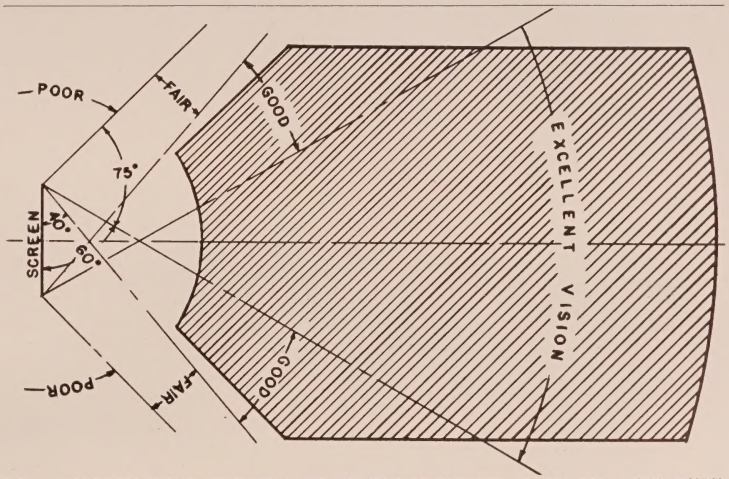

FIG. 1.—APPORTIONING SEATING AREA INTO SECTIONS OF EXCELLENT—GOOD—FAIR—POOR VISION. There is no set rule for locating the line where excellent vision stops or where poor vision starts but for practical figuring the following method is appropriate: (1) From each corner of screen draw lines for 40 degree—60 degree—135 degree angles. (2) The vision is excellent between the 60 degree lines. (3) Between the 40 degree and 60 degree lines on both sides the vision remains good. (4) But between the 40 degree line from one side of screen and the 135 degree line from the other side the vision is only fair. (5) All persons seated outside of these 135 degree lines will have poor vision. Placing chairs in these sections should be avoided as much as possible.

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They are always glad to work out these sight lines, floor inclines, and riser heights of loge and balcony risers because all this contributes to a good installation. They will also give the exact location of all aisle light outlets, ventilators, carpets, and depressed aisles. In

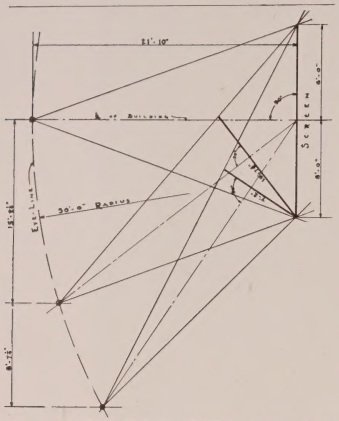

FIG. 2. VISUAL SIZE OF SCREEN. From various points along the eye-line of a row of chairs near the stage the sketch above shows the actual amount of screen visible at each position.

the balconies, they will give the distance required between steps for the seating. In placing steps in the balcony or loge when they are built on an arc, care should be taken to see that the ends of the steps are placed on a radial line, and not on the aisle line. When the ends of the step are placed on the aisle line, a pocket or hole is formed between the end of the step and the end standard of the section of chairs. These pockets or holes create a hazard, and should be eliminated for the sake of safety.

The following sketch (Fig. 3) shows the right and wrong way to build steps in balconies or loges when the chairs are to be set on an arc.

In the reseating of a theatre the seating company's engineering department is available and willing to submit various seating arrangements. In a large number of cases, it is possible to improve the present seating arrangement. In reseating a theatre where the sight lines are poor, and where there is to be no extensive remodeling or where a new floor cannot be laid, the sight lines in the theatre can sometimes be improved by staggering the seating. In most cases it is only necessary to stagger the chairs in the center bank as there is usually an automatic staggering of the chairs in the side banks. Fig. 4 shows a section of chairs in the center and side bank. Although these chairs set d i r e c t l y behind one another, there is no need of staggering the chairs in the side bank due to the staggering that is automatically obtained. In the center bank,

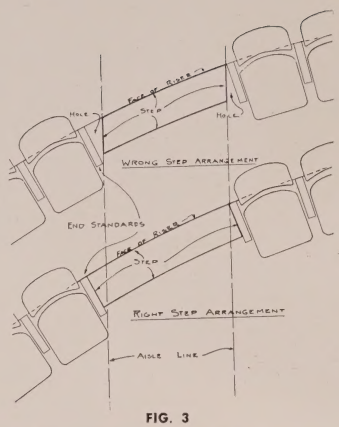

FIG. 3

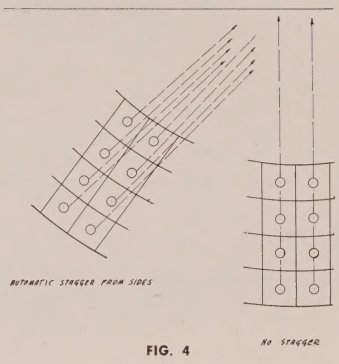

FIG. 4

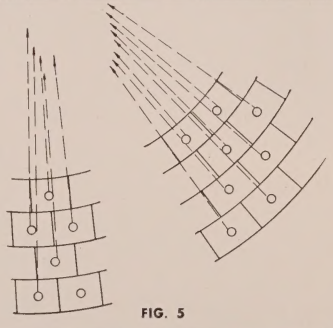

FIG. 5

sight lines could be improved greatly by the use of staggered seating. Fig. 5 shows the seating staggered in both the center and side banks of chairs. Notice the great improvement that has resulted by the use of staggered seating in the center bank of chairs.

While staggered seating will help improve the sight lines in a theatre, a new theatre should not be built with floor inclines so poor that staggered seating would have to be depended upon to obtain the proper sight lines. Staggered seating is used primarily to improve the vision in old theatres that do not have the proper floor inclines. There are several ways of obtaining staggered seating. One way would be to drop a chair in every other row, and set this row in one-half a chair's width from the aisle line. This would form a pocket or hole at every other row in this bank of chairs. This method is not recommended. Another method is to use an extra large chair at each end of every other row of chairs. This chair should be one and one-half times the width of the other chairs used in this bank of seating. Chairs of this type are usually called love seats. By using love seats, the pocket or hole mentioned in the other method of staggering the chairs is eliminated. (Some theatre managers object to the use of love seats in a theatre while others recommend it highly.)

Another method of staggering the seating is to use large size chairs at one end of the section and smaller size chairs at the other end of the section. The size of the chairs should be alternated in every row. That is, the large size chairs should be on the right hand side of the section, and in the row directly ahead and behind, the large size chairs should be at the left hand side of the section. This arrangement also eliminates any holes or pockets at the aisle line, and is the one usually recommended by the seating companies.

In laying out the floor to install opera chairs the first thing the installation man should do is to check the length and width of the building. If there is any slight discrepancy in the building measurements, he must decide where this discrepancy can be taken up. He must then establish the center line of the auditorium. In laying out the seating, measuring should be done from the center line, and not from the side walls. He then determines where the first row of chairs is to be placed, and draws a line from this point at right angles to the center line. The method of drawing this line at right angles to the center line is by using the three, four, five method, that is by using the point on the center line from which the line is to be drawn at right angles to the center line, as a radius point, and swinging an arc above or below this point on the center line, using a three foot radius. From the same radius point, swing an arc at approximately right angles to the center line, using a four foot radius. Using the point where the arc crossed the center line, and with a five foot radius, swing an arc to cross the arc swung with the four foot radius at both sides of the center line. By drawing a straight line through the intersection of the last two arcs, one will have a line at right angles to the center line. In most cases, it will be found desirable to use longer radii than mentioned above. This can be done by using multiples of three, four, five. That is multiplying each of these numbers by the same number. If each number was multiplied by three, a radius of nine,

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twelve, and fifteen feet could be used instead of a radius of three, four, and five feet.

If the chairs are to be set in straight rows, it is a simple matter to mark off the floor on the center line the same distance as the spacing of the chairs back to back, and draw lines parallel to the first line established at right angles to the center line.

If the chairs are to set on an arc, there are several methods of establishing the arcs on the floor. The most accurate and best method, after drawing a line at right angles to the center line through the point on the center line where the first row of chairs is to be set, is to mark off this line at two foot intervals each side of the center line, starting at the center line, and working over to the wall. Most of the seating companies furnish their installation men with charts showing the drop from the line at right angles to the center line to the arc to be drawn on the floor. These charts are usually made up showing the drop every two feet from the center line, with radii from 20′ 0″ to 200′ 0″ at five feet intervals. If a chart of this sort is not available, other methods can be used. The next best method would be, using the point where the first arc is to be swung as a radius point, swing an arc on the center line in back of the first row using the radius desired for the first row of chairs. Then, using the point where this arc crosses the center line as a radius point, swing an arc using the same radius. This will give an arc swung through the point where the first row of chairs is to set. This will be the reverse of the one desired. Then, by marking the floor at 2′0″ intervals along the line that is at right angles to the center line and which also just touches the arc at the center line, the distance can be measured from the line at right angles to the center line to the reversed arc, and the same distance measured below the line at right angles to the center line. A series of points will then be established. By using a flexible board, an arc can be drawn through these points. This arc will be the same radius as the reversed arc. (See Fig. 6). After the first arc is drawn on the floor in the proper location, and if all the chairs are to be placed on arcs drawn from the same radius point, a form should be made by using a flexible board about 12′0″ to 14′0″ long, and nailing four strips to this board one at each end, and the other two spaced at equal distances between the two ends. If these legs are the same length as the spacing desired, the end of the legs can be placed on the first arc. This will form an arc with the flexible board, and an arc can be drawn along this flexible board. This operation can be continued until all the arcs are scribed on the floor. Then using the seating plan supplied by the seating company the location of the chair standards and aisles can be marked on the floor.

William A. Gedris has been connected with the seating industry since 1922. He came out with the Ideal chair line in 1930, and since that time his company has manufactured approximately 1,000,000 chairs for about 1500 theatres.

It is essential when building a floor that a good floor is built. If the floor is of concrete construction, be sure that a good grade of concrete is used. The chair standards are fastened to the concrete floor by means of expansion bolts. If a poor grade of concrete is used in pouring the floor, these expansion bolts will not hold tight to the floor, and expensive repairs will be required later. On wood floors the chair standards are fastened to the floor with wood floor screws.

Perhaps these foregoing paragraphs sound extremely involved and technical to the average layman. However, this is just as it was intended. The installation of theatre chairs should not be attempted or trusted to any mechanic who is not fully experienced in this highly specialized type of work.

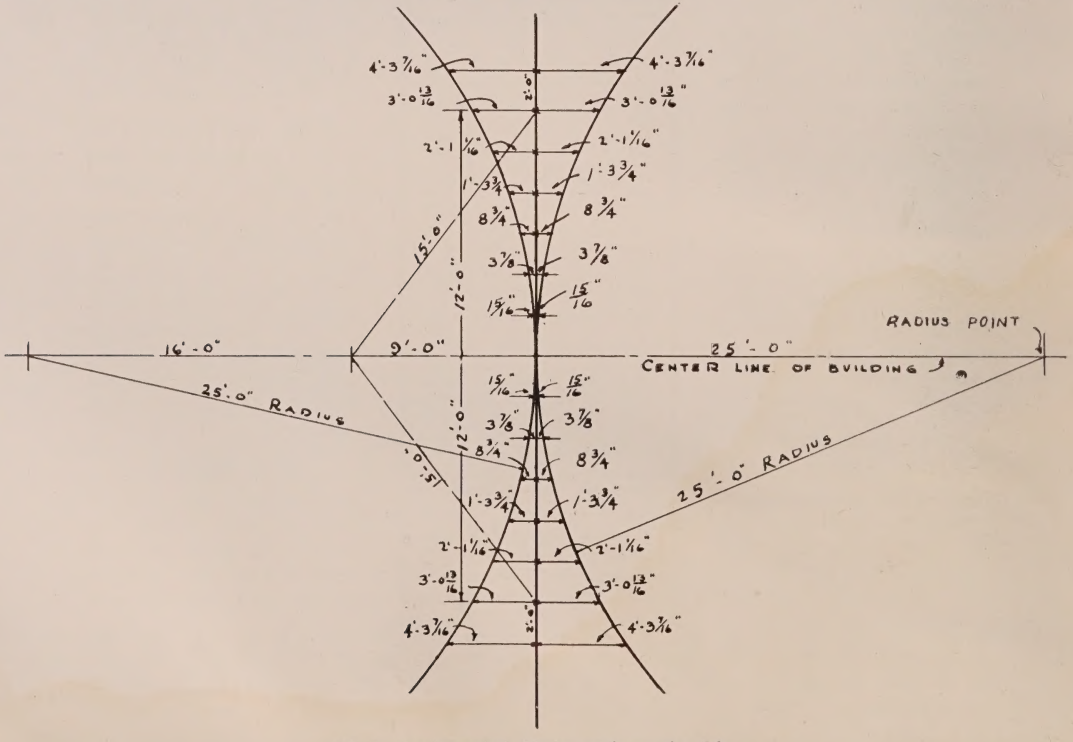

FIG. 6. Showing method of laying out the arc of a circle.

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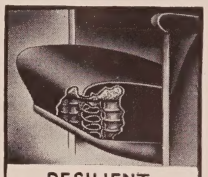

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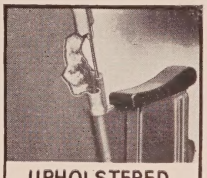

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HOW DECORATION IS EVOLVING . . .

A New Carpeting Trend

In which a prominent carpet stylist recognizes the changes in public taste and draws on the opinions of leading designers.

by Gerald F. McGimsey

To ANYONE who has followed recent installations, the question suggests itself very forcibly. Theatres that were done 10 years ago look a little "dated". There's a new spirit abroad. Even if it is too early to speak of a new style, it is at least clear there is a new trend, one whose influence is likely to expand as it develops. Since carpets play such an important part in a theatre interior, the new trend is especially evident to those of us who are called on to supply the floor-coverings for the movie houses of America.

Let me say right at the start that there are, of course, many houses whose idea of a carpet is still pretty much what it was 10 years ago, a flaring design on a large scale, vivid colors in high key, sharply contrasted, an effect in general, corresponding to that of an orchestra in which the brasses predominate.

But in the better houses, and it is always from the top layer that style-trends originate, this type of decoration is going out of favor. Softer colors and more refined effects are being called for. The whole idea of what the inside of a theatre should look like is undergoing a change, and the carpet is changing with it.

ONE OF THE EARLIEST SIGNALS of the coming trend was Radio City Music Hall, New York. The writer recalls that the interior architect, Donald Deskey, specified colors that were definitely keyed lower than was usual in the theatre decoration of the period. It was pointed out to him that this was the case, and that he might want his colors executed more brightly, especially since traffic reduces tones by a step or two in any event. He rejected the suggestion; and it is interesting to note that after nine years, when it came to replacing the original carpet, the management ordered exactly the same pattern and color effects. Public taste had caught up with Radio City Music Hall.

Radio City's preference has been followed increasingly since. We notice that architects and owners are calling for quieter and more dignified patterns. We get less calls for designs which have a large number of colors. Look at the Mayfair, Ventura, Cal. The architect, S. Charles Lee, has used a carpet patterned in tones of one color. Some, like the Community, Morristown, N. J., actually go in for a plain shade carpet. Vanishing is the demand for the type of design which has prominent black lines in it, along with kaleidoscopic colors. They are replaced by darker colors in tone. It is interesting to see how many carpets usually worked out in five colors are new reduced to three. They may, or may not, be more economical: the point is, they answer the demand for quieter carpets.

WHAT ARE THE FACTORS that are bringing this new trend to the front?

First, there is a growth of better taste in the public itself. Carpet manufacturers have taken note of this in the floor-coverings for the home. During the past seven or eight years, demand has been for softer effects. Pastel colors have been extremely popular. Tone-on-tone patterns, that is, patterns in a single color, together with plain shade broadlooms have become prominent. People realize that a carpet is a background, and must set off the rest of the interior. To some extent, it must always be subdued in character. Now the public which buys for the home and the public which goes to the theatre are the same people. They may expect a different kind of carpet in a theatre background, but their feeling about color and their demand for refinement will not change. They react unfavorably to what is garish, what some theatre owners call "corny", and what I have heard one purchasing agent reject with the words: "That's too 'guinea' for us."

The second big influence is the coming of the neighborhood theatre. Because of their size, they are intimate in character. They do not aim at colossal effects, and they could not compete with the super-theatres in this, even if they wanted to. They do not splash marble about, and they do not raise gigantic structures of gold-plastered rococo statuary which belong to a park rather than an interior. They please by their dignity and their restraint. The atmosphere is relaxed and cosy, and one that people like to come back to. The screen, itself, takes its place as the most important thing in the theatre, and decorations are more in the nature of accents than a side show which a circus would be proud.

Let me make this clear: this does not mean that a theatre carpet should resemble that of a home. It can aim at fantasy, a certain dream-like quality. But it does not have to be loud. Theatre architects and decorators who are working in the new manner are very positive about that. Fantasy can be created just as effectively in good taste, they say.

The third factor to note is the influence of modern decoration.

Acceptance of this has increased steadily, and most of all, perhaps, in public places. It has brought with it simplifi- overloaded with ornament. The carpet has less to compete with, and, as a consequence, decorators have been able to use more refined colors without losing "punch".

Modern methods of lighting, too, have played their part. I am referring not merely to the projectors of greater intensity, which, even in a darkened theatre, permit of lighter-toned carpets. The whole illumination scheme, with its indirect lighting technique, calls for softer carpet effects.

It is interesting to see what the architects themselves have to say. Their opinions are remarkably unanimous on the main points.

Says Donald Deskey:

"Theatre interiors have been due for a change for some time now. They are getting away from the brash modernistic to interiors that are subtle, interesting, and dramatic. As far as carpets are concerned, they should be neutral in their final effect: the floor is something to walk on, not to get up and slap you in the face. That is why I avoid sharply contrasting colors in a rug design. There is another reason, too, a practical one. Maintenance is more difficult where bright colors are used. I believe the neighborhood theatres have been influential in introducing more refined patterns, and, no doubt, the example of Radio City Music Hall has had a wide effect, too."

Here is the opinion of A. O. Budina:

"There is no doubt but what there is a definite tendency for theatre decorations to be much more dignified, and quieter than they were 20 years ago when I first started in this business. This, I believe, is due to two things; first, and most important one, I believe, is the fact that the taste of the American people has improved a great deal during this period, and the theatre going public is more appreciative now of dignified quality decorations.

"The second reason for this improvement is that we have gotten away from the idea of tremendously large theatres,

A WORD TO THE

January, 1942

The U. S. Government has restricted the use of carpet wool during the first quarter of 1942 to 50% of that used during the first quarter of 1941.

This probably is only a beginning. It is reasonable to assume that carpet, particularly for contract installations, will become increasingly difficult to obtain.

It is only common sense, therefore, to examine your present carpet and, if you need new carpet, to buy a carpet you *know* will give you *unusually* long wear.

If you have been using Alexander Smith Crestwood Carpet you already are familiar with its merits. You *know* that it will retain its rich coloring and luxurious appearance as long, or longer, than any other comparably priced carpet . . . as long, or longer, than many carpets costing a great deal more.

In the light of the facts it is not surprising that Alexander Smith Crestwood is America's No. 1 theatre carpet—the carpet used in most of the country's successful theatres.

Why take a chance in a time like this when there is every probability that carpet will become increasingly difficult to obtain? Why not specify a carpet you *know* you can count on . . . a carpet whose *beauty* will please your patrons and whose *demonstrated durability* will make it unnecessary for you to worry about replacement for a long time to come? Why not play safe and specify:

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The Crestwood process does not permit the use of inferior "belly" wools. *Only* pure white wool . . . stronger, more durable, more resilient, better looking . . . can be used. Because the yarns are drum-dyed, only the best quality, long-staple yarns can be used.

These wools are imported from Asia, Africa, Australia and South America. (There undoubtedly will be a shortage of these wools as the war spreads throughout the world—one reason for the Government curtailment of production.)

The finest obtainable dyes are used

America's No. 1 Theatre Carpet

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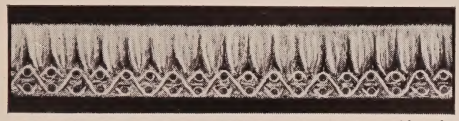
CARPET-WISE!



CRESTWOOD CROSS-SECTION *(Magnified).* Closely woven tufts—deep pile of uniform height. (Note that *all* the wool is in the *surface.*)

CRESTWOOD BACK *(Magnified).* Firm, uniform and tightly woven back, indicating rigid and sturdy pile.

FREE SURVEY

We shall be pleased to send a representative to make a survey of your present carpet. He will forecast its probable wear-life for you. If you do not need new carpet he will tell you so and will show you how to care for it to prolong its life. There is no charge or obligation for this service. Merely write Contract Carpet Division, Alexander Smith & Sons Carpet Company, 295 Fifth Avenue, New York, N. Y.

to achieve Crestwood's clear, rich Tru-Tone colors...colors that remain as clear and lovely in artificial light as in sunlight—an important factor in theatre installations.

Wools, dyes and other raw materials are laboratory-tested before production starts. The laboratory also checks each step of manufacture. The completed carpet is not only fine-tooth-comb inspected before the carpet can bear the Alexander Smith label with the Good Housekeeping advertising guaranty—it is subjected to severe comparative wear tests in conformance with U. S. Government standards.

In addition to our own laboratory tests, many purchasers, including a number of leading chains, subject Crestwood to rigorous wear tests of their own devising. As a consequence, many of these purchasers have standardized on Crestwood.

The process by which Crestwood is made puts *every ounce* of wool in the surface where the carpet gets the wear—not in the back. (No carpet ever wore out in the back.) The Crestwood process also makes possible a dense, closely packed pile, uniform in height, which makes it difficult to mat down and which enables it to keep its original designs and colors for a longer wear-period.

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ALL WOOL PILE

CRESTWOOD CARPET

295 Fifth Avenue, New York City

ALEXANDER SMITH & SONS CO.

and smaller motion picture houses lend themselves to a much more rational treatment than do the super-colossal palaces of motion pictures.

"I think that we are gradually learning to use brilliant colors much more skillfully than we have in the past, and can now harmonize them so that we can have very colorful decorations and still keep them in good taste."

Harold Spitznazel says:

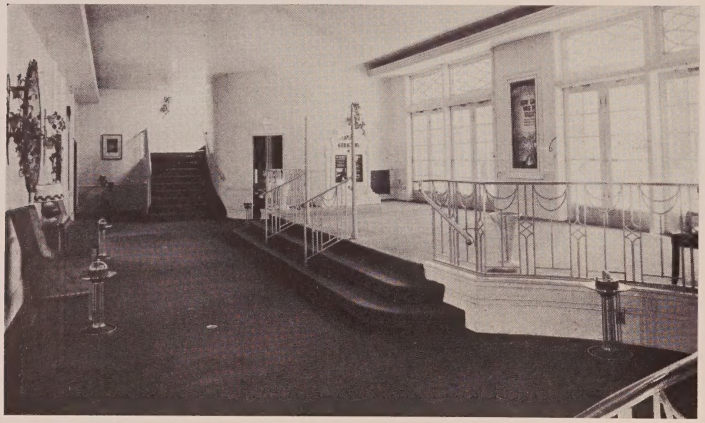
"The writer does not subscribe to the opinion that the interior decoration of the theatre should be so flamboyant as to shock one's sensibilities. The screen will provide all of the diversion required.

"There is no reason why the decoration cannot be stimulating without necessarily being gaudy."

Armand Carroll, Philadelphia, says:

"The circus days as to color and ornamentation are over. The American public wants simple, quiet design and above all it must be in good taste."

Gerald F. McGimsey is stylist and manager of the contract carpet division of A & M Karagheusian, Inc., which supplied the carpets for Radio City Music Hall as well as for theatres of all types in the country. He is a veteran of 30 years in the field, and is that rare combination, a man equally familiar with manufacturing processes, decorative styles, and the problems which face owners and managers of theatres.



COMMUNITY THEATRE, MORRISTOWN, N. J. gives a striking example of the modern neighborhood theatre of the better type. The plain shade broadloom carpet is a far cry from the highly ornate patterns found in older theatres.

MAIN STREET PLAYHOUSE, KEW GARDENS, L. I., N. Y., sets a fine example of decoration. Carpet plays an important part while still being kept soft in its color effects.

Carl G. Moeller, Los Angeles, says:

"Let's leave the realities at home, in the office and etc. and make the theatre a place, where we may still have dreams.

"Without repeating the absurd over-ornate and ridiculous circus wagon treatment of the past decade, and with all due regard to the appreciable trend toward refinement and restraint in decoration, I'll say, decoration should be subordinated to the creation of a distinct cheerfully mysterious atmosphere, with ornamentation restricted to localized areas and accent on some outstanding point of interest, which may be a mural, plastic relief, mirror, or combination of two or all.

"Carpet colors and patterns must be chosen with regard to the ever important requirement to create a feeling of spaciousness. The carpet may be rich in color, bold in design, but should not feature any too contrasting light and dark values in pattern as this tends to disrupt the unity of the general scheme and would be contrary to the principle purpose and role, which the carpet plays as the fundamental base thereof."

And from Eugene Schoen:

Interesting comment comes from Eugene Schoen, who did the Center for the Rockefeller interests in New York.

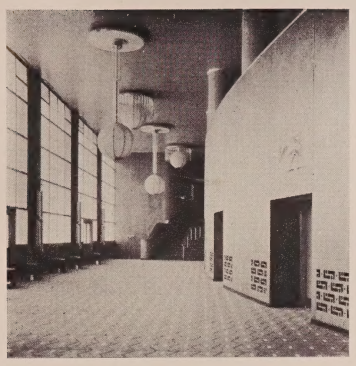
"The small theatres, particularly the neighborhood theatres, seem to be very much quieter in their treatments, and getting away from the tendency to over-ornamentation. The interior of a theatre should serve as a warm background for what is happening on the stage or screen, and not as a showplace for the patron to regale himself with. It should be simple, and the color should be nice so that when the lights go up there is a fine warmth and pleasantness about the house, lighting as unobtrusive as possible but still pleasant."

Asked if he thought the public is looking for a quiet effect, he said:

"I don't think the public gives a damn. I think the public generally will accept what it gets. Therefore, it must be led, and it can be led towards good taste just as well as it can be led towards bad taste. The tendency towards bad taste in the theatres, I think, is not due so much to the demand of the public as to the reluctance on the part of designers and owners of theatres to realize that the 1910 and 1920 era of theatre design was a conglomeration of over-ornamentation and indifferent taste.

"One can always be quiet and restrained even though one is fantastic in his design—as for example in the very fine interior of the Ziegfield that the late Joseph Urban did, where fantasy ran riot but the whole thing is done in beautiful tones of greens that make the interior look like a magnificent tapestry yet also give the feeling of great intimacy.

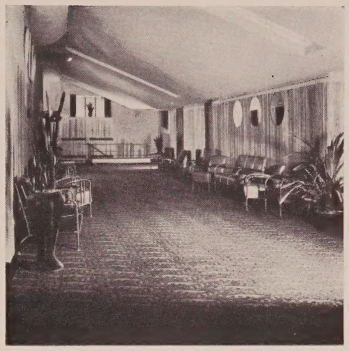
"The carpet is very important in the design of the interior. The colors should



CLINTON THEATRE, BROOKLYN, N.Y. shows that softly colored carpet makes a rich effect against simple walls and under indirect lighting.

be warm, and the design should be marked sufficiently to guide the steps of the patron in the semi-light of the theatre. I believe that to rely upon "black light" effects with phosphorescent crapets is just begging the question. You can get those results with a type of design that will give you a contrasting character in the carpet, and not show stains and foot marks as easily as other carpets do. The lobby carpets, of course, do not need a strong design because they are always visible under the bright illumination of the interior, but even there you can have contrasts of light and dark.

"We can assume that the era of the gilded rococo style is a thing of the past. There is no question about that. I do think that more experiments are going to be made by both owner and architect in the question of illumination. The next development in theatre and quasi-public building design is going to be the use of so-called 'thread' lighting, concealed perhaps to a much larger degree than now in which color will play a very important part against an absolutely plain and simple background. Whatever one puts into the carpet will count for more than it has heretofore, because carpet will have to be of the very best quality and against these simple surfaces that I visualize with lighting as the decorative scheme, the carpet will be far more important than it is now when it has to fight against highly marked interiors like marble, plaster (painted and ornamented). Perhaps there will not be such a feeling of restlessness as we have today, because of the fact that in order to be a practical, serviceable thing, the carpet generally has too much design and color in it."



Radio City's CENTER THEATRE, NEW YORK, N.Y., designed by Eugene Schoen creates intimate atmosphere in a large theatre by the use of a simple carpet pattern.

Asked to name such theatres, he said he could not point to any at present. He declared:

"The owners, so far as I know, who are willing to experiment with light as decoration have not yet made their appearance. They are going to save a lot of money, and get startling effects in their theatres, but so far nobody has shown up yet to enable putting this into practice."

Study of Carpet Cushions

Summarizing the proper weights, grades, and qualities for heavy duty use; and the service which they perform in protecting carpet.

by J. F. Huston

BY REASON OF the nature of his business, the average theatre owner doesn't do a lot of material purchasing. Nevertheless, he is apt to be a pretty shrewd buyer of supply items that he needs fairly frequently. By shopping around, he has found brands and suppliers that are satisfactory.

Carpet linings or cushions are something else again. They're bought for the years, and the theatre owner can't afford to rely on trial-and-error purchasing methods in buying them. He has to buy correctly the first time, for a bad lining can cost hundreds of dollars in lost carpet wear.

SO, WITHOUT BECOMING AN EXPERT on the subject, what the theatre owner needs is a fool-proof rule-of-thumb to follow. Fortunately, such a rule can be made simple. There are two big things to watch:

1. *Be sure the carpet lining you get is sufficiently heavy. Anything lighter than 64 ounces per square yard is not to be recommended for public places.*
2. *Be sure it's made of the proper material, and that means all hair.*

First, the matter of thickness. Carpet linings are sold according to their weight per square yard. The heaviest weighs about 86 ounces, a padding about three-quarters of an inch thick. Other weights are correspondingly less thick.

To see whether theatre owners actually follow the "buy heavy" rule, a study was made of the purchases of 100 typical theatres. This showed that—

Sixty-one theatres had bought 86 ounce padding

Twenty-two theatres had bought 64 ounce padding

Six theatres had bought 45 ounce padding

Eleven theatres had bought 32 ounce padding.

Compared with a similar check made a few years ago this shows a sharp trend in the direction of heavier weights. In other words, theatre owners are increasingly conscious of the false economy of skimpy weights. The 32 and 45 ounce linings are not intended for the grinding traffic of a theatre. They are designed for home use, not public buildings. Floor covering men are agreed that in theatres the extra expenditure for heavier linings will be returned many times over in increased carpet wear.

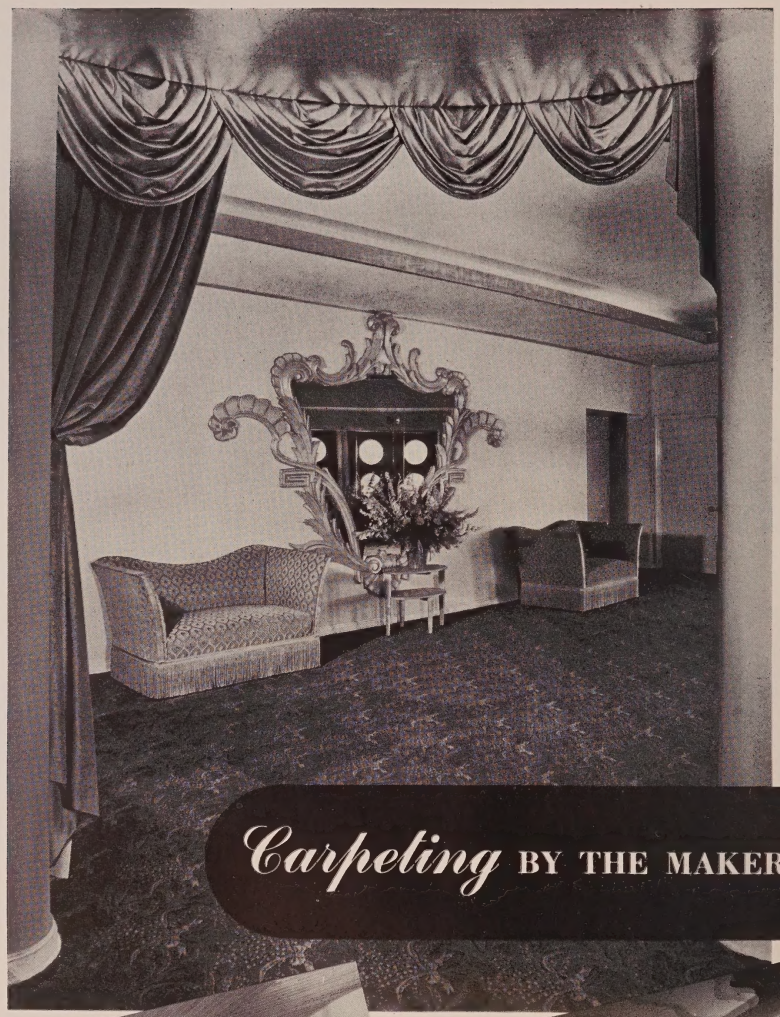
That being so, why have theatres been sold too-light linings? The answer lies in trade bidding practices which sometimes have an even more serious result than cutting down the weight of cushions, that is, the substitution of vastly inferior linings made of vegetable fibers for those made of hair.

A THEATRE CARPETING JOB is generally spoken of in the floor covering trade as a "contract job", and as such is the subject of intense competition. Theatre men naturally welcome this because it appears to offer them low prices. The unfortunate aspect is that while the grade of carpet to be used may be specified and known, the grade of carpet lining usually is not. The result is a practice of making lump-sum quotations, with carpets laid over the cheapest possible cushions.

There is only one safeguard against this: *Specify* the weight and grade of the padding, and demand itemized estimates. Reputable floor covering houses will welcome the opportunity to bid on this basis. Only the fly-by-nights will be reluctant to do so.

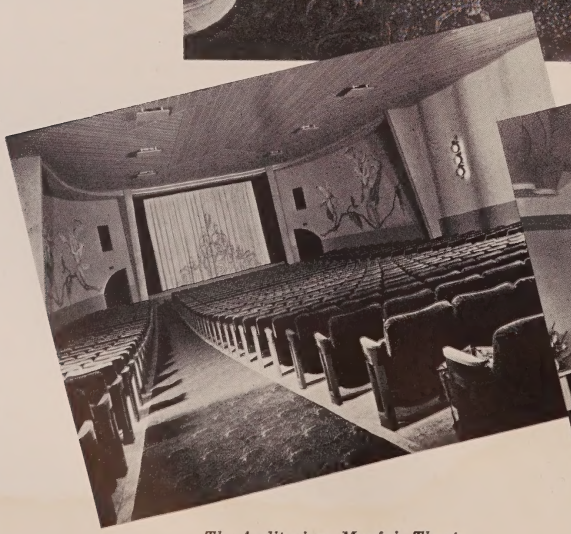
Now, while carpet padding makes up only a minor fraction of the cost of a complete carpeting job, this much is literally true: The actual dollars and cents value of the padding to the theatre owner should be just as great as that of the

A. & M. KARAGHEUSIAN CO., INC.



The Foyer, Mayfair Theatre, Ventura, California. Architect, S. Charles Lee

Carpeting BY THE MAKERS OF



The Auditorium, Mayfair Theatre, Ventura, California. Architect, S. Charles Lee

Upstairs Lounge, Hawaii Theatre, Los Angeles, California. Architect, Carl G. Moeller

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Radio City Music Hall began it! (carpeted by Karagheusian eight years ago) . . . the idea that theatre carpets didn't have to be fireworks . . . that colors should be soft and restful—and as refined as you would choose for your own home.

From the theatres that Karagheusian has equipped this year, and from the type of inquiries it is receiving, the new theatre carpet style is obviously in full development today.

Look at the Mayfair Theatre in Ventura, California—a Wilton in soft tone on tone! Look at the Hawaii Theatre, Los Angeles! And as a reminder, look at the foyer carpet in Radio City Music Hall, with its soft harmonies of color—replaced in 1941 exactly as originally ordered in 1933!

To see the new style patterns, consult nearest Karagheusian representative. No obligation, of course.

Qualities priced to suit absolutely every requirement

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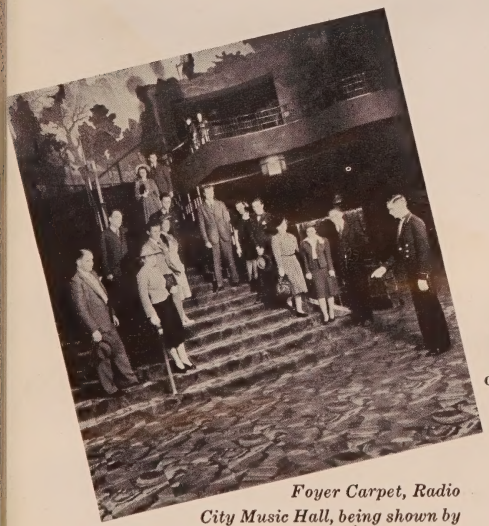

Foyer Carpet, Radio City Music Hall, being shown by official guides. Interior Decoration by Donald Deskey

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SAN FRANCISCO: Western Furniture Exch.
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CHEAP PADDING, BEFORE AND AFTER—The workman is holding two pieces of jute cushion that were originally identical. The top one is new—thick and soft. The bottom one has been in service for a comparatively short time, but has already packed down hard. Its resilience and protective qualities are gone.

carpet itself. Perhaps this sounds overstrained, but, if anything, it's an understatement. For it is a fact, well established by experience and technical tests, that a piece of carpet will wear more than twice as long when laid over an all-hair cushion than when laid on bare floor. It was this fact that led to the widespread adoption of resilient hair cushions many years ago in place of the old fashioned cotton-and-paper linings.

As with any successful product, the hair cushions were followed by cheaper imitations and clever simulations confusing to buyers. Producers of cheap paddings fostered the confusion by dyeing vegetable fibres (jute) to look like animal hair—a deception highly effective on competing jobs. As a result, the buyer sometimes doesn't know what he's getting—whether hair, jute, or a combination of the two.

The buyer of a combination hair-and-jute padding faces a particular difficulty, for even if he is told that he is getting a mixture, he has no idea of the proportion. Is the padding 50% jute and 50% hair, or 90% jute and only 10% hair? The buyer has no way of finding out, for more often than not the contract house itself doesn't know. On the other hand, the buyer of an all-hair cushion *knows* what he's getting.

THE FACT is that cheap paddings *when new* are as soft as a genuine all-hair cushion. But whereas the hair cushion retains its springiness indefinitely, the vegetable fibre padding packs down and loses most of its protective value. The packing takes place so gradually that it escapes notice until too late, and the damage appears suddenly on the surface of the carpet. As a matter of fact, not one carpet user in five hundred ever takes the trouble to look and see what actually has happened to his carpet cushion under service conditions.

But if cheap linings have been bought because the purchaser didn't know the difference, they have also been bought during depression years because the temptation to try cheapness was too great; too great for the contractor who was hard pressed by competition; too great for the purchaser who frequently was less concerned with a future hazard than with an immediate saving.

But now, with a general return to quality, the tide has turned. For one thing, many theatre owners who installed cheap linings during the depression have learned their lesson. Users of vegetable fiber paddings have found that they got about the same short-life performance that they would have received from the old fashioned paper linings that were in style before the advent of hair cushions.

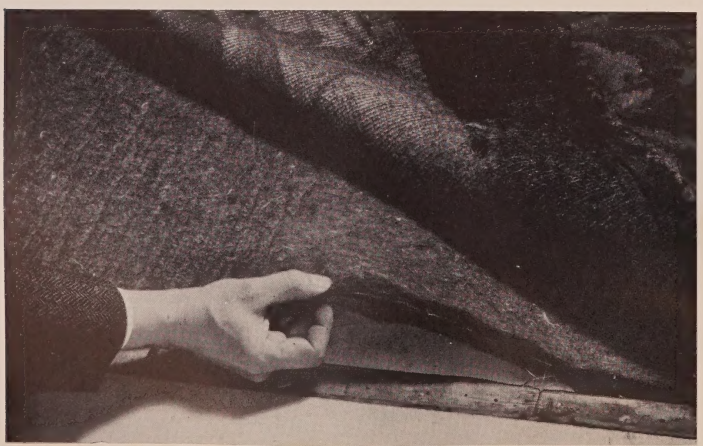
Another reason for the shift is that manufacturers are seeing to it, as never before, that the facts about quality are not kept from the victim until after the virus of price competition has been introduced.

J. F. Huston has had considerable experience as a writer for business publications. To complete this article he made a considerable investigation among floor covering authorities and others who had access to material which ordinarily would not be obtainable, including private records of installations in theatres and other public service establishments, and data regarding experiences by users all over the country.

QUALITY IS NOT ONLY being proclaimed. It is being explained, logically. Manufacturers who make both jute and hair cushions are frankly informing customers of the difference between the two.

Nobody can tell, of course, just how long a given grade of carpeting is going to last. But there are endless examples in which carpets in public buildings, laid over hair cushions, are still in service after 10 or more years. To pick one example, in the main lobby of the Palace, Chicago, the original carpet is still in first-class shape after standing up under the daily pounding of thousands of feet for more than 16 years. The hair cushion under the carpet is thick, soft, and resilient as when new. And the only maintenance required for this kind of service is regular vacuuming of the carpet.

On the other hand, there are innumerable cases of carpets laid over jute paddings being "shot" after only three, four, or five years of service. When examined, the paddings are found to be less than half their original thicknesses, with very little protective resilience left. New carpets *and* linings have to be bought, and and somebody learns an expensive lesson.



STILL GOOD AFTER 15 YEARS—This is the original carpet and cushion laid more than 15 years ago in the lobby of a big metropolitan theatre. The all-hair cushion has paid for itself many times—yet is still as good as new.

ESSENTIAL RULES FOR PERFECT . . .

Carpet Installations

The man who has sold over 5,000,000 yards of theatre carpet discusses the methods and practices he has found best suited.

by W. C. (Bert) Hammel

THE SUCCESS OF ANY INSTALLATION of carpet in a theatre depends upon careful forethought and study. No two theatres are exactly alike in construction or decorative schemes and each must, therefore, be treated as an individual problem. Thus the alert operator will not only consider the advice of his architect and decorator, but will also avail himself of the free advice of the carpet manufacturer's representative who has made a specialty of the theatre field. This does not mean that the operator should sacrifice his own ideas. Rather, the problem should be examined cooperatively by the operator, his architect and decorator, and by the manufacturer's representative.

The observations that follow are the results of years of close relationship with problems of carpet installation in theatres both large and small in many sections of the country.

IN ASSIGNING this article to me, the editor has requested that I discuss the following subjects: (1) Relation of design size to area size; (2) Color harmony or color contrast to surrounding surfaces; (3) A pleasing decorative theme or design; (4) Wearing quality, and (5) A mechanically correct installation.

With regard to the first topic, if the space is irregular with a large number of right angles, it is advisable to use a design which will not make these breaks too noticeable. In other words, the inviolate and fundamental rule calls for a carpet with small designs for a small area and carpet with large designs for a large area.

Considering the second subject, covering color harmony, there can be no set rules to follow. This phase has to be individually treated, and cannot be forecast until careful consideration is given to the general decorative scheme. If the scheme is subdued or conservative, it is possible to use carpet that "splashes" color. Choice of colorings must be approached from the angle of their wearing qualities. Generally there is a softening of colors through absorption after the carpet has been installed from three to six months. This should be remembered from the outset so that the carpet will not become dead or gray after the initial installation period.

In discussing the subject of a decorative theme or design, it can be pointed out that in the past, little attention was given to the proper correlation of decorative ensemble. Today, happily, for the operator and his patrons, much more attention is being given to these essential factors. The "cathedral" or rococo style of house has given way to more functional designs which employ flat surfaces which are more relaxing to the eye, and which insure better acoustics.

OF ALL THE QUALITIES desirable in good theatre carpet, the most important is that of wearing ability. Of all carpet installed anywhere, I doubt that any take more "beating" than theatre carpet. Once a carpet is down, it is subjected to the most severe traffic it is possible to give a floor covering. And of all floor coverings available to theatres, carpet has proven itself the most efficient. The best theatre carpet is a closely woven velvet fabric, with a high-pile and dense surface.

The close attention carpet manufacturers give to the design and weaving of theatre carpet indicates their serious approach to the subject. There is no room for guesswork in the manufacture of theatre carpet. Designers make special studies of colorings and patterns that will stand up through years of heavy traffic. Constant laboratory control is maintained. Wear-testing machines are employed to check the efficiency of every run of carpet. Delicate electrical instruments control the dyeing and scouring solutions to assure even coloring and uniformity of product. A "Fade-o-meter" tests light and fastness of color in an intense ultra-violet light; 30 hours in the latter machine is equivalent to two weeks under July sun at noon.

Slip-shod and indifferent methods employed in the installation of theatre carpet are responsible for many headaches for the theatre operator and the carpet manufacturer. Often the latter is blamed for what appears at first to be inferior goods, when investigation reveals that faulty workmanship on the part of the installer is the real culprit. Employment of a reputable firm to lay the carpet is of first importance, if the operator hopes to obtain maximum performance from his carpet.

THERE ARE A FEW CARDINAL principles which, if followed, will do much towards a successful installation. The pattern of the carpet should be carefully matched to give a smooth appearance, and the seams should be properly sewed. The carpet should be laid flat, without bulges or pockets. Towards the elimination of the latter, the use of pins and plugs is desirable, as a means of fastening the carpet to floor base. When we speak of pins and plugs, we mean that holes are bored into the base flooring, usually concrete, into which are inserted wooden plugs. The carpet is then made secure by driving pins through the carpet and into the wooden plugs. An all-hair or rubber lining should be always used as an underlay to insure a smooth and permanent job. After 30 days of use, the carpet should be re-stretched to eliminate possible pockets or bulges which, however slight, may later cause trouble.

Up to this point, our discussion has concerned carpet laid on unbroken areas. Now we come to the all-important subject of proper installation of carpet on stairs. One of the most frequent pile floor covering complaints of the theatre manager has been the poor performance of carpets on theatre stairs. The abrasive action resulting from traffic on stairs is such that wear concentrated at the area on or close to the nosing of the steps. Consequently the carpet wears out at these points much sooner than on flat surfaces where traffic is uniformly distributed over a large area.

A considerable increase in the wear of theatre stair carpet can be obtained through the use of special underlays when carpeting stairs. The maintenance department of a large theatre circuit has carried out considerable experimentation in collaboration with us on different types and combinations of underlays on theatre stairs. The head of the maintenance department reported that the new method of installation gave two years of stair service, while the old method gave only one year of service on the same quality of carpet.

VARIOUS METHODS of installing carpet on theatre stairs are used. They can be classified into three groups as follows:

Method No. 1—NOT RECOMMENDED:

This is the customary theatre stair carpet installation. The regulation slats are fastened to the stairs at the intersection of the tread and riser. A heavy felt underlay, around 50 ounces, is then laid

MOHAWK

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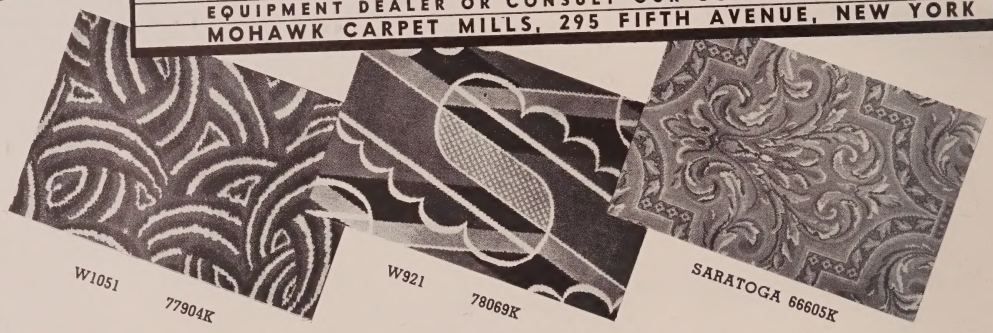

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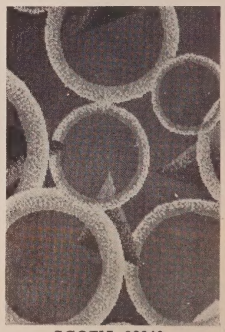
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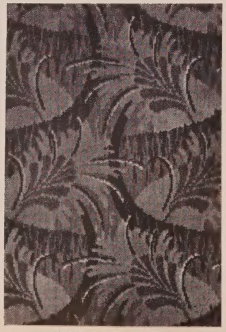
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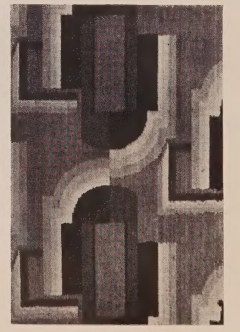
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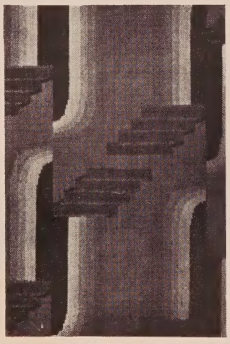

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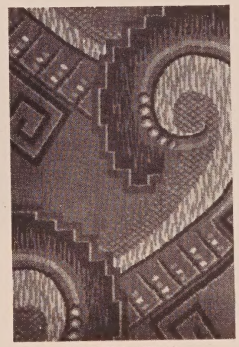

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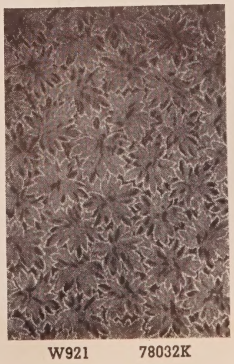


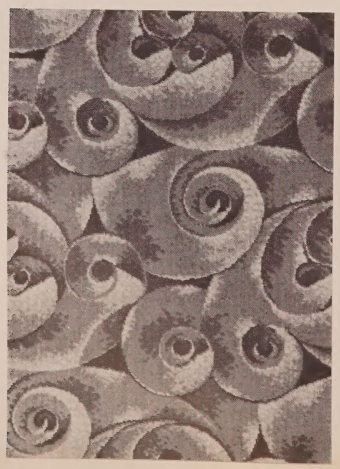
W921 78032K

An example of a large figured pattern, the type of carpet desirable for large areas.

over the stairs. The carpet is laid over the underlay, and fastened to the slats.

This method of installation is economical at first cost, however, because the underlay does not protect the carpet at the nose of the step for more than a few months. The carpet rapidly flattens down, and wears out. Wear out means shifting, an expensive proceeding, and finally replacement of the carpet.

The reason for the rapid wear is that the felt underlay, after a few months' pounding, rapidly loses its original thickness, and soon flattens down. When the underlay flattens down, and affords no protection to the carpet, then the carpet must absorb all the shock of traffic. What happens is that, as time goes on, the felt underlay begins to decrease in thickness, and because of the decrease in thickness leaves a space between carpet and underlay. This causes the looseness and results in flexing of the carpet, and occasionally pulling out of tacks from the slats.



For small areas, closely figured patterns like the above are recommended.

The amount of protection given by the underlay can be roughly gauged by banging one's fist against the stair nose. If the blow is not well cushioned on striking the step, and the surface feels resistent and unyielding, then it is a good sign that the underlay, if one was used, has become so worn out as not to afford any cushioning to the carpet.

Method No. 2—RECOMMENDED:

This type of installation is used in many theatres in the metropolitan area. In making this installation the slats are fastened to the stairs as usual. Strips of sponge rubber are then cemented to the steps with a rubber cement. The thickness of rubber used is generally about 1/4″ and the width of strip is such that it overhangs, and covers the nosing. A heavy felt lining, about 50 ounces, is then laid over the strips, and fastened to them with linoleum cement. Carpet is laid over these linings, and fastened to the stairs with tacks.

While this method has been very successful from the standpoint of increasing wear, some trouble has been experienced with what has been called "stretching of the carpet". This is an apparent loosening of the carpet at the stair nosing.

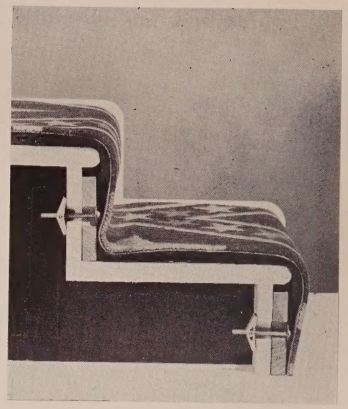
The condition can be remedied by fastening the carpet to the slat with screws and washers in place of tacks. Screws and washers are available which make a neat and satisfactory appearing stair. This type of installation requires a different slat than the customary one. Here an oak slat is used, and is fastened to the riser, not at the intersection of tread and riser.

The reason for the improved wear lies in the use of sponge rubber at the nosing. This material is relatively permanent in its resilience, and its ability to return to its original dimensions after being pressed down as is the case in stair traffic. Thus the material continues to provide throughout the life of the carpet, a cushion which absorbs part of the blows applied to the carpet.

This type of installation is more costly than use of felt underlay; however, the increase in wear more than justifies the added cost.

Method No. 3—RECOMMENDED:

This method of installation is simpler than Method No. 2, yet, if the proper sponge rubber is used, will afford satisfactory wear without any "stretching of the carpet". The slats are laid as usual at intersections of the tread and riser. Sponge rubber strips 3/8″ to 1/2″ in thickness are then fastened to the treads at the beginning of the slat so that they overhang, and cover the nosing. The strips are fastened to the stairs with rubber cement. In theatres where traffic is heavy, a 1/2″ thick sponge rubber should be used.



Cross section of a suggested theatre stair installation. On the tread, 64-ounce felt is fastened with linoleum cement. On the nose, five inches of one-half inch sponge rubber is fastened with rubber cement. On the riser, three-quarter inch oak slat is fastened with toggle bolts. The carpet is fastened to slats with one inch plated screws and washers spaced every three inches.

After the strips have been laid, the carpet is then fastened to the slat in the customary manner. In some installations where there is very heavy traffic, it may be desirable to fasten the carpet with screws and washers.

IN CONCLUSION, my message to theatre owners and operators is three-fold: First, the coordination of architectural design and coloring of the carpet; second, the responsibility of the manufacturer to produce carpet having proper wearing qualities; third, mechanically correct installations in all floor and stair areas.

Associated with the carpet industry for the past 20 years, first with W. and J. Sloane, W. C. (Bert) Hammel is now carpet sales manager for Alexander Smith & Sons Carpet Company. During his years in the field, he has had a close association with theatre suppliers and theatre owners, and has an intimate knowledge of the floor covering and decorating problems encountered in theatre. It has been estimated that during his career he has sold approximately 5,000,000 yards of carpet to theatres in every part of the country.

Rubber Mats and Nosings

ADD LIFE TO YOUR RUG INVESTMENT

The locations where rubber matting and rubber stair nosings are needed and the methods that should be used to install them.

by Lawson S. Houghton

THE CONTINUED EXPENSE, year after year, of replacing curled, cupped, and broken mats is a big item to the exhibitor, and digs deeply into the boxoffice "gravy". These replacements may be in the outer lobby, inner lobby, at drinking fountain areas, or in other sections of the theatre where daily scrubbing and cleaning is required. More rubber mats are scrubbed to death and mistreated, through rough handling, than are worn through by actual foot traffic.

A rubber mat should be of good compound, cured to the proper density to withstand the treatment to which it will be subjected. The duck insert should be at least half way down in the mat. A piece of rubber mat stock which is too soft is much more likely to go sour quicker than one which is too hard.

I have heard opinions expressed by theatre operators that because a sample was soft and flabby, it must contain a high percentage of "live" rubber. Actually, the piece was "under-cured," and the crude content by volume was lower than other fillers. This contention is still held by a great many of the larger circuit as well as independent operators. However, the facts are being proven as time goes on, although it is costly learning.

A good cleaning agent, either liquid or powder, is most important in prolonging the life and durability of rubber mats. Cleaning compounds should be selected that will not "burn" or soften the stock, causing the mat to check and craze. If this is the result, the mat becomes porous, and will take dirt like a turkish towel takes muddy feet.

IT IS THE WRITER'S CONTENTION that a mat can be perforated half way through, and still serve the purpose for which it is intended. The dirt will fall into the pockets, and can be removed with the house vacuum. A good mopping should follow, using a good cleaning compound, and then a clean water rinse should be used. Rinsing is important at all times in order to pick up the film left by the cleaning agent.

By not perforating entirely through the mat it can be laid and cemented, if necessary, eliminating continual handling which causes breakage. If the area is on grade, that is, if a live air chamber is not below the floor on which these mats are to be cemented, an inexpensive waterproofing can be installed.

On new construction, brass well strips can be eliminated, thus saving almost 50% of the original cost of the mat installation. Wall to wall installations are recommended here, using extra wide 10 foot widths. Thicknesses are available in 3/16″, 1/4″, 5/16″, 3/8″, and 1/2″. These thicknesses will take care of the smallest to the largest houses, and should be selected in accordance with the amount of traffic.

DESIGN

Most any pattern can be executed, and a design, although attractive, should not be too "busy" to detract from the sales points that one presents to patrons.

Solid rubber mats not perforated, but having a corrugated finish, are ideal for spaces where carpet will not take the brunt of the traffic. Carpet patterns can be matched very closely, and the mats can be inlaid to butt carpet breadths. Plain colors should be used as well, although they are more noticeable than designs that follow the carpet pattern. A rough surface covering is ideal for areas on an incline, particularly in bad weather. Aisle sections can be treated with a rubber sheet stock with sponge rubber backing. This backing absorbs the sound of foot traffic, and does not disturb the patrons during operation of the film entertainment.

A typical installation of rubber stair tread nosing in terra cotta.

Rubber mats are ideal for areas around drinking fountains, sand urns, candy counters, and machines, entrances to lounge sections, and exit doors that relieve a lot of front lobby traffic.

ONE OF THE THEATRE OWNER'S largest single maintenance expense items is floor covering. Most houses have a repair and replacement cost of these floor covering far in excess of what they should be, only because they are not maintained properly or the materials used in maintaining are improper, or for both reasons.

The first and most important thing for the buyer to do is:

1. Be sure the mat product is a good quality item. Don't be misled on price alone. One may spend 15 or 20c a square foot less for a mat at the initial purchase when an expenditure of this extra cost might save real money in the long run by the item lasting as much as twice the normal time of the cheaper product.

2. Be sure the duck insert is fully in the center of the mat. If only one-third from the surface, one gets only two-thirds of the actual wearing value.

3. Select good reputable cleaning compounds. Use as directed by the maker and insist that the porter rinse the mat with clean water to eliminate residue left by the compound. Avoid soaps with an oil base. Nothing will harm rubber mats more than a strong oil tar soap or powder with a high alkaline content.

TREAD NOSING

Rubber stair tread nosings, used in conjunction with carpet on stairs, have come into their own in the past year or two. Old worn carpet in these areas is not only unsightly but most dangerous to patrons and employees. In white, they can be seen for a considerable distance, and are of tremendous assistance to the theatre goer because they can be picked out very easily during the showing of a picture or stage presentation. They can be installed with new or old stair coverings without removal of the covering from the stairs. We all know the dangers of traveling on stairs in a dimly lit

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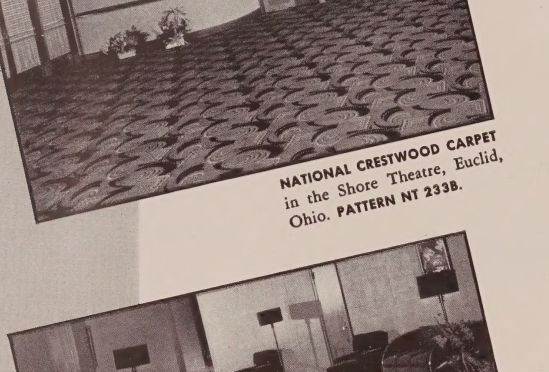

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balcony area. The small heel of the woman patron naturally does not give the support of the man's in descending the stairs. Therefore, it is imperative that a visible line be drawn on stair areas.

Steps to lounge rooms do not necessarily require a white nosing, as light is usually more plentiful here. Other colors are made, and usually the background color of the carpet is selected for the rubber stair tread nosing.

Insurance companies declare that over 70% of all accidents in the theatre happen on the stair areas, and it has also been found that theatres having a visible line reduce such hazards by 90%.

Lawson S. Houghton has studied the exhibitors' angle from both sides of the footlights since forsaking his college education for show business. Over 15 years ago he became affiliated with one of the world's largest rubber companies, starting in factory production, through the sales division, to the establishment of a corporation, eight years ago, of which he is a stockholder and director. Resuming his education at Columbia University, during evening classes he studied merchandising, sales promotion, advertising, and color harmony. This latter course has enabled him to advise theatre operators expertly on proper color schemes, which has been most advantageous in his line of business.

Wartime Remodeling

THAT USES ONLY NON-DEFENSE MATERIAL

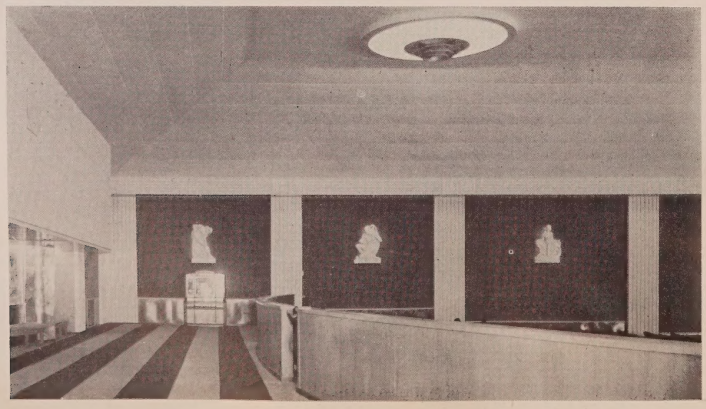
It will continue to be "good theatre" to maintain the normal schedule of remodeling and redecorating. And here are many methods.

by A. I. Kessler

WITH THE ADVENT of war, radical changes are taking place which will affect the theatre in many ways. Acute shortages of materials ordinarily used in building and decorating are already being felt, and there will be greater scarcity as time goes on.

While stainless steel, copper, chrome, and kindred materials are no longer available, silks, cotton, and rayon textiles for civilian use are less plentiful, too. The stocks of cotton goods at the outbreak of war were enormous, but consumption continues at a very high rate. New supplies of silk are entirely out of the question; parachutes and other needs of the military establishment are taking the entire stock. The same restriction on civilian uses of rayon and synthetic fabrics applies in lesser degree.

Mills fabricating materials are concentrating on fewer numbers. Diversification is being cramped, and one can no longer obtain any kind of fabric one wants. As long as war goes on, with its requirements and necessities taking so much of everything, we will not be able to be too choosey. We will be compelled to accept a fabric as "second" best and "third" best. Of necessity, there will be fewer color ranges and fewer styles, fewer textures, and less fabric from which to choose.



EMBASSY THEATRE, ATLANTIC CITY, N. J. shows the use of plaster ornament lighting for side wall relief

FABRICS may be used advantageously in auditoriums, foyers, lobbies, and other public spaces. Fabrics have great functional and wide decorative value. Fabrics help correct sound and eliminate echoes in auditoriums. Fine, distinctive color schemes are achieved with fabrics, not obtainable with flat paint or other media.

There is nothing permanent and unchanging in the theatre any more than in life, itself. Indeed, there are a hundred ingenious ways of employing fabrics to transform colorless, barren, wall surfaces in a theatre into restful, harmonious, inviting areas. It takes planning, thoughtful study, and, above all else, vast experience to produce desirable and worthwhile results.

A good cook does not require a million different ingredients to make good broth, nor does a good decorator or drapery man require limitless materials to accomplish creditable effects. It is also well to remember that dramatic and matchless beauty may be realized from simple treatments. The ability to choose correctly, logically, and with unassailable integrity, does not come lightly. Even though the manufacture of fabrics has been sharply curtailed, the situation is neither hopeless nor alarming.

HERE IS A PRACTICAL demonstration of materials used modestly in formulating a logical treatment and obtaining pleasing results. It is no makeshift improvisation but a studied and carefully thought out plan to utilize an auditorium wall surface without overdoing it, and without unnecessary embellishments. Illustrated is a side wall view of the Embassy Theatre, Atlantic City. The spaces between pilasters are roughly 20 feet apart. Here the walls are covered with a plain gray-blue velour. Over the velour is placed a modelled ornament in plaster, and this ornament is approximately four feet. These are applied about nine inches away from the wall surface to allow for relamping. A soft blue light spreads to the adjacent areas from underneath, and a pin light in the ceiling is focused on the object itself. While the arrangement is simple, an atmosphere is created which is both dignified and charming.

The World's Leading Decorators of Fine Theatre Interiors . . .

Year after year,—when the really worth while theatre construction and redecoration is summarized,—you will observe that one decorating studio stands out above all others as the leader in its field. This cannot be an accident. Knowledge and ability tells. It isn't news, and it is generally conceded:- (1) that the really new ideas in theatre decorating; (2) that the touches which patrons recognize as good taste; and (3) that the economical prices which theatre owners can afford to pay are, year after year, developed by one studio.

You can have confidence in the ability, manpower, and craftsmanship of that studio. One that can boast of TEN out of the forty-eight theatres throughout the United States and Canada illustrated in these pages and selected as "best-of-the-year" by this 1942 THEATRE CATALOG, is certain to make your theatre the "best-in-your-area".

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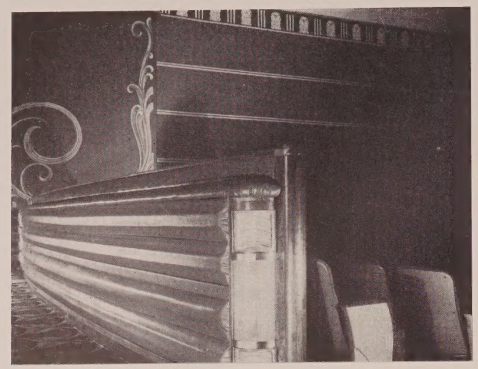


THE DARLTON THEATRE

PAWTUCKET, R. I.

Architect: C. REUBEN MOBERG
Owner: WILLIAM PINAULT and ASSOCIATES

PAINTING, DECORATING, WALL FABRICS, ACOUSTICAL TREATMENT, and DRAPERIES comprised our contract.

The auditorium sidewalls are in light salmon, gold, green and red pastels, capped by a decorative frieze in red and ivory. The stage draperies of bright red velours with gold festoons highlight the auditorium—while two pale green panels decorated in low relief actually frame the proscenium and accent its brilliance. Similar panels at the rear of each wall carry the same general treatment back into the theatre.

Other outstanding features: **The standee rail and the whole standee area wall surface in tufted red leatherette. The large central lounge in gold metallic pyroxalin cloth and green and ivory painted decorative frieze. The ladies' room in rubbed walnut. The men's room in knotty pine.**

See **PRESENTATION No. 3** (Pages 26, 27, 28)

THE ROYAL THEATRE

DETROIT, MICH.

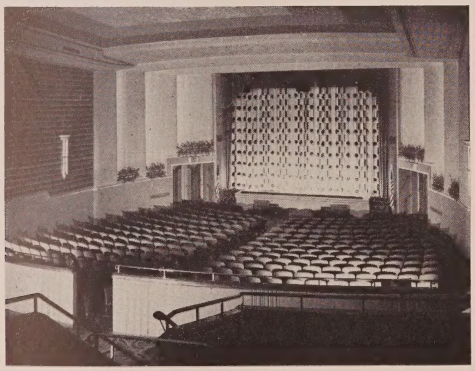
Architect: CHARLES N. AGREE
Owner: WISPER & WETSMAN

DRAPERIES, WALL FABRICS, STAGE CURTAINS, and STANDEE AREA CORNICES and DRAPERIES comprised our contract.

In this theatre which seats 2500 patrons on one floor, the problem presented was to give a large auditorium the intimate warmth that is so desirable in a place of public assemblage. This was accomplished in a very creditable fashion through the use of 160 feet of figured draperies falling in soft folds across the front wall. The 66 foot proscenium arch, itself heavily masked and draped in contrasting shades, is softened and blended into a complete and pleasing effect.

Other outstanding features: **The Austrian drapes falling in rich heavy folds over the standee rail and acting as both an acoustical aid and an air deflector. The Festooned Drapes over each isle head. An interesting and decorative unit.**

See **PRESENTATION No. 4** (Pages 29, 30, 31)



THE MAYFAIR THEATRE

FLUSHING, LONG ISLAND, NEW YORK

Architect: CHARLES A. SANDBLOOM
Owner: PURITAN LAND CORPORATION

DRAPERIES, WALL FABRICS, STAGE CURTAINS and OTHER DECORATIVE EFFECTS comprised our contract.

A 600 seat, stadium type theatre, its decorative treatment is warm and colorful. The side and rear wall fabrics are in green with beige, white and gold horizontal bands woven in. The main stage curtains are of multi-colored painted plush. The valance and side draperies are in soft green plush with heavy rose rope festoons. On the side walls, broad, painted panels in neutral shades and with illuminative perpendicular recesses, mark the stadium channel in the center of the theatre and relieve the plainness of the wall fabric design.

Other outstanding features: **The soft tones of the painted ceiling. The simple richness of the chair upholstery. The eight, combination direct and indirect, lighting fixtures which furnish ornamental spots on the side walls.**

See **PRESENTATION No. 12** (Pages 50, 51, 52)

THE STAR THEATRE

TONAWANDA, N. Y.

Architect: MICHAEL DE ANGELIS
Owner: DIPSON—BASIL THEATRES, INC.

MURALS, WALL COVERING, STAGE CURTAINS and DRAPERIES comprised our contract.

The dominant decorative features of this auditorium are the murals depicting a neo-classic enchantress enticing gay plumaged birds with sweet music. The side walls are broken with a velour treatment in the form of a broad pilaster with many shadings of soft pastel colors in blended tones to give the effect of depth recesses and heightened by well proportioned metallic four pointed star indirect lighting fixtures. The maroon dado steppings conform to the floor slope. The major side wall spaces are treated with horizontal bands of acoustic velour in blue green tones and the streamline effect is emphasized by metallic mouldings.

Other outstanding features: **The simple richness of the Stage Curtains in multi-color finger plush in light and dark shades. The Draperies and Exit-door Draperies brought out in rich red plush.**

See **PRESENTATION No. 15** (Pages 58, 59, 60)

NOVELTY SCENIC STUDIOS, INC.

that Merited Attention by this Annual!

THE EMBASSY THEATRE

ATLANTIC CITY, N. J.

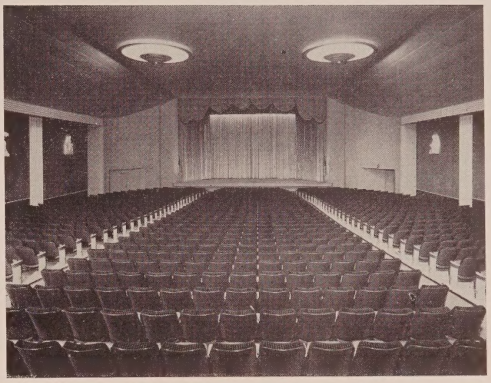
Architect: ARMAND CARROLL
Owner: WIELLAND and LEWIS

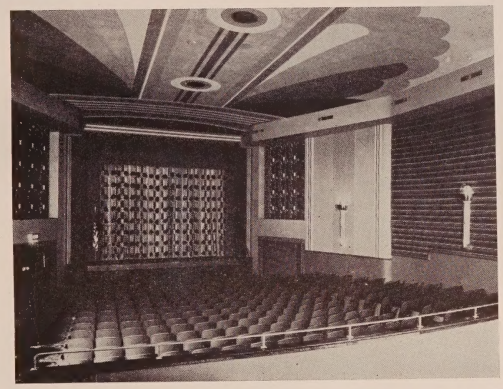
ACOUSTICAL WALL COVERINGS, STAGE CURTAINS, DRAPERIES and ORNAMENTAL UPHOLSTERED BENCHES comprised our contract.

This newest of six luxurious theatres under the same ownership in this resort city, has many design and decorative features which give it unusual merit. Soft, gray-blue, velour panels accented by modern fluted white pilasters and with oyster white cast plaster ornaments, silhouette lighted from the rear, centered in each panel. A beige proscenium valance, with legs and border of dusty blue plush frames a screen curtain of gold damask. Combined with plain carpet in warm gray field and purple border, the effect is rich and pleasing.

Other outstanding features: **The built-in benches in the standee area upholstered in heavy beige whipcord material. The single modern pendant fixtures in the huge lobby dome.**

See **PRESENTATION No. 18** (Pages 66, 67, 68)





THE CIRCLE THEATRE

NEW YORK, N. Y.

Architect: CHARLES A. SANDBLOOM
Owner: WEINSTOCK CIRCUIT

ACOUSTICAL TREATMENT, STAGE CURTAINS, DRAPERIES and WALL FABRICS comprised our contract.

Using rockwool bats for their unmistakably great acoustical value, the side and rear walls are covered with green homespun with eggshell and gold horizontal woven-in bands. Green painted wooden moulding strips are parallelled at four foot intervals. The exit doors are draped in rust velour. The stage draperies consist of a modern, green plush boxed valance and legs. The masking side arms and border are of rust velour. Hand painted decorated plush curtains combine all colors.

Other outstanding features: **The two Decorative Panels over the exit doors near the stage, further augment the decorative scheme of the theatre.**

See **PRESENTATION No. 21** (Pages 74, 75, 76)

NOVELTY SCENIC STUDIOS, INC.

THE LEE THEATRE

ROANOKE, VA.

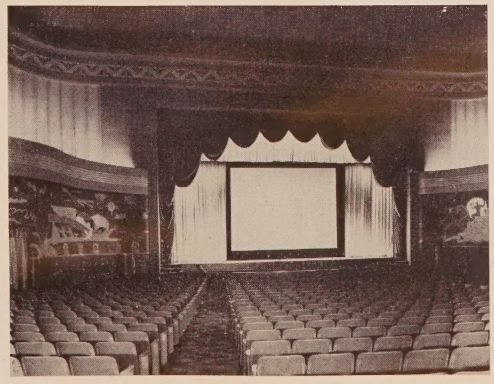
Architect: EUBANK & CALDWELL
Owner: LEHIGH DEVELOPMENT CORP.

MURALS, WALL COVERINGS, STAGE CURTAINS, DRAPERIES, TUFTED LOBBY WALLS, and all INTERIOR DECORATING comprised our contract.

Because of the lofty height of the auditorium, a special 100 inch wide cotton fabric with gray, white and dusty rose parallel lines dress the side and rear walls from dado to ceiling. At the proscenium end, two murals keynote the decorative quality of the interior. One suggests a classical theme with an Ionic column, a Greek key ornament, bars of music and a mask to accent the poetic and musical composition. The other is a modified version of Pegasus and the Flying Horse. Both are executed in pastels and keynote the entire interior decoration. The draperies, curtains, chair upholstery and carpets blend into the entire color scheme.

Other outstanding features: **The Tufted Lobby Wall Panels combined with sections of mirrored Flexglass. The dimmer controlled illumination of the murals and the absence of auditorium lighting fixtures.**

See **PRESENTATION No. 29** (Pages 96, 97)



THE CENTRAL THEATRE

PASSAIC, N. J.

Architects: JOHN and DREW EBERSON
Owner: CENTER AMUSEMENT COMPANY

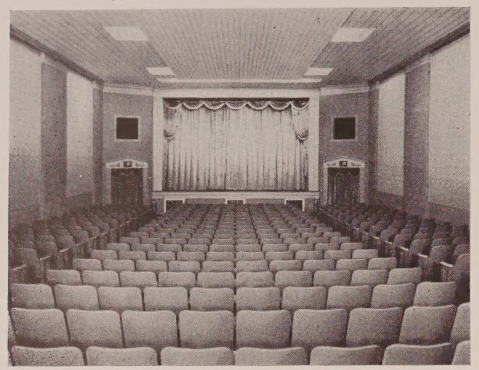
WALL COVERINGS for the AUDITORIUM, LOBBY and LOUNGE ROOMS, DRAPERIES, STAGE SETTINGS, STAGE RIGGING and STAGE CURTAINS comprised our contract.

A special woven damask with a rust background and a 36 inch high repeat design in silver, does much to make the huge walls of this 2400 seat theatre seem more intimate and emphasizes its grandeur. The proscenium valance and side drapes are antique gold and green satin. The front curtain is of the same gold and green satin but behind it are several more combinations for vaudeville and name band use, ending in a cyclorama in gold and tan satin damask. The formation of proscenium valance with its varied festoon arrangement simulates a contour curtain when raised.

Other outstanding features: **The walls of the lobby leading to the grand lounge on the mezzanine floor are covered with heavy plush in a warm, deep rust tone. The walls of the two ladies' rooms covered in blue and silver damask, rose beige and tan damask, respectively. Arches between these areas are draped in two-faced heavy antique satins and damask conforming in design and color to the particular spaces they face.**

See **PRESENTATION No. 33 (Pages** 106, 107, 108)

Every Theatre is an Individual Achievement!



THE REGENT THEATRE

COLONIAL HEIGHTS, VA.

Architect: A. O. BUDINA
Owner: NEIGHBORHOOD THEATRES CIRCUIT

WALL FABRICS, DRAPERIES and STAGE CURTAINS comprised our contract.

The Colonial atmosphere in this theatre dictated the use of draperies and wall coverings which are in tune with it and which results in a cheerful, restful interior. The side and rear walls are in damask with gold and eggshell combined in a colonial pattern and installed between pilasters. A green plush proscenium valance and side draperies and old gold plush main draw curtains dress the stage opening. Side arm curtains and hanging borders are of modulated gold antique satins. Screen curtains are of eggshell hammered satin. Openings near the stage are draped with gold plush to conform with the main draw curtains.

Other outstanding features: **The fidelity to true Colonial motif which is carried thruout. The resulting charm which is in tune with the theatre's location.**

See **PRESENTATION No. 36** (Pages 114, 115)

THE GRAND THEATRE

WESTFIELD, N. Y.

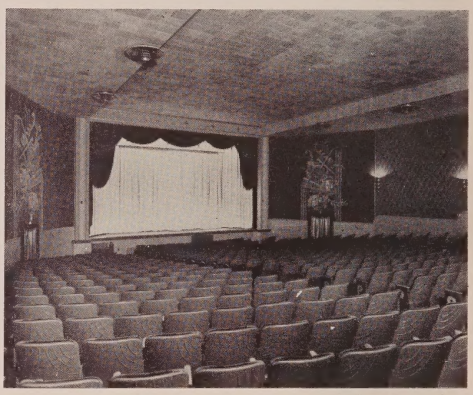
Architect: MICHAEL DE ANGELIS
Owner: J. K. BLAKELY

MURALS, WALL FABRICS, PAINTING, ACOUSTICAL TREATMENT, DRAPERIES and STAGE CURTAINS comprised our contract.

A light cedar colored damask, due to the highlighting of the material itself, gives an effect of raised or tufted padding on the side walls in a very interesting design. The only relief is furnished by chromium light fixtures. Murals in light tones showing masks, musical instruments and spirit of the theatre are applied in special low relief process on turquoise blue velour. The stage valance and legs are royal blue plush, complementary stage drapes which are turquoise blue, hammered satin. The screen curtains are in eggshell white hammered satin.

Other outstanding features: **The dignified lobby with walls in Flexwood veneer and combined with mirrored Flexglass in a flesh color.**

See **PRESENTATION No. 41** (Pages 124, 125)



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Like any other problem, one has certain fundamental principles which must be observed, and which must be used as guides. If an interior is styled with traditional architecture, let us say in the "Adam" period, one will not select a baroque material for wall fabrics and draperies. Nor will one select a modern material for a theatre done in Spanish or Moorish architecture.

It is always important to remember, too, that a patterned fabric may have a design that is too large or too small in scale to fit a certain area properly. Similarly, a fabric with lateral lines in a modern interior may be totally out of place in one location but entirely logical in another. Shape, form, and dimension have much to do with the ultimate selection.

Another thing to remember is that where one has rooms or areas that are oversize, and out of scale, one can often help to normalize these conditions with the proper use and application of fabrics. (Many theatres in operation today have been garages, stores, banks, and other business buildings not originally designed as theatres.)

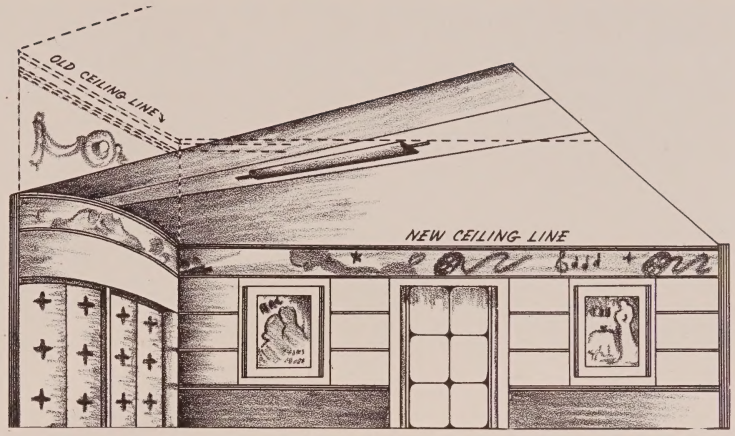
If one assumes an attitude of indifference in the selection of materials and color of fabrics on the assumption that nobody knows and nobody cares, one labors under an entirely erroneous impression. In every theatre, some people come in at one time or another who do know and do care, and it does not make sense to look foolish, and create a bad impression.

Colors and fabrics selected with discretion, and coordinated with skill, produce dignified, restful, charming interiors. And a color scheme fundamentally wrong at the outset, arrived at without basic study and analysis, produces an atmosphere that is without rhythm, and is discordant and disturbing to the last degree.

A PERSON IS instantly impressed either favorably or negatively the moment he enters the theatre. If it is to be good, as a theatre man one must employ the best to obtain the best results. And this does not necessarily mean being extravagant. It does not mean excessive charges. There are some who can take a few comparatively inexpensive materials, and produce really fine and highly creditable results. Yet there are others whose finished work screams from the housetops. Unfortunately, there are many theatres in evidence which pictorially emphasize this operation.

These "ugly duckling" interiors, misshapen, distorted, and discordant, are unnecessary. And it is not brilliant nor wise to make walls, stages, and other areas sparkle and glitter when every basic principle, good taste, and sound common sense calls for simplicity, dignity, and refinement.

Oftimes a large lounge with a few broken down pieces of furniture and some paint on the walls presents a forlorn and hopeless picture.



A FALSE CEILING can be made to reduce the extreme heights of some old-time structures.

Are the frames salvageable? Then reconstruct them. Cover them with a suitable material and possibly cover the walls with a desirable, complementary, fabric. Perhaps a floor lamp may be added here and there. This change will take on a new character. Instead of a desolate and forbidding area, it will have warmth, interest and coziness.

Perhaps the theatre may have a roomy standee area which will permit the introduction of soft wall fabrics and draperies. There possibly may be room for a fireplace, andirons, and other appropriate appurtenances which will go far to give color and vitality to this space.

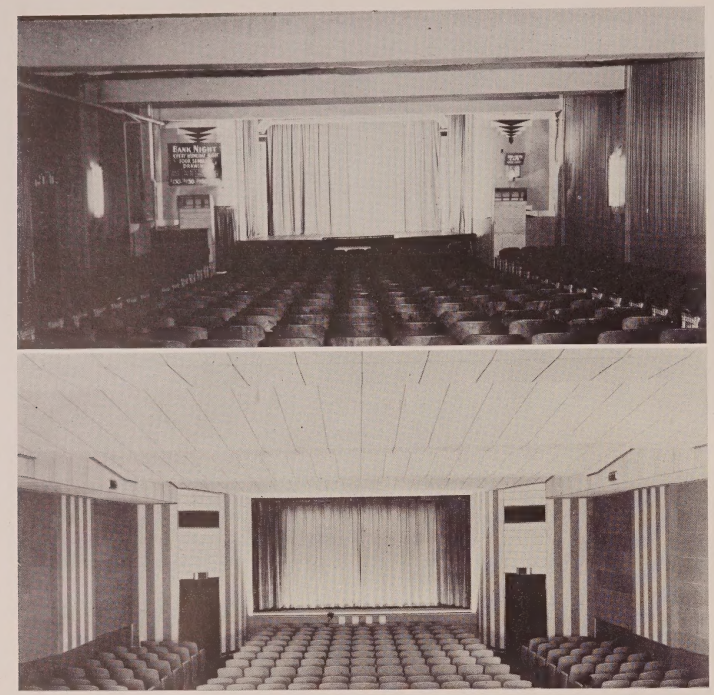
Is there a foyer lacking in warmth and cheerfulness? Why not try to recreate it? Have a series of tufted panels made of velour or leatherette or a pyroxalin fabric. This treatment always looks smart. When the color and form are properly conceived, an atmosphere of distinction is invariably achieved.

Another variation of the tufted wall treatment is to design panels and ornamental plaster plaques at intervals into a unified scheme. The plaques can be decorative, or they can be historical, perhaps portraying the epochal development of the motion picture industry. They can symbolize the arts, music, dance, or other subjects identified with the theatre.

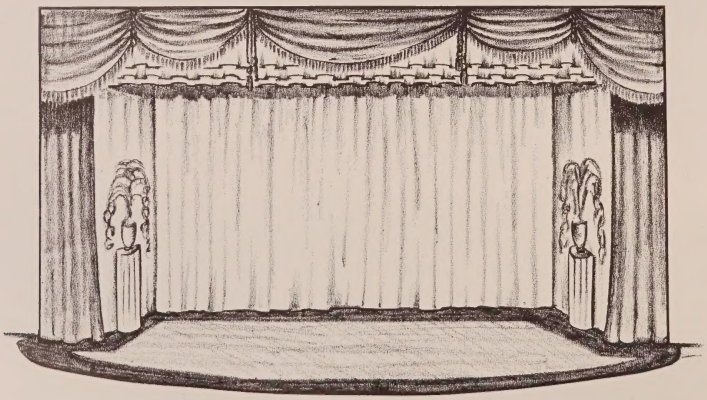
Are there some aperture near the stage that look empty and meaningless? Will the installation of a neutral fabric on the background area be helpful? Will a piece of modern statuary in front of it, subtly accented with a soft glow of light focused on the object, do the trick?

The walls of the auditorium may not have been touched for five, six or seven years. There may be a series of damask panels which show discoloration, wear and

CENTER THEATRE, BALTIMORE, MD. makes good use of leatherette tufted panels on the lobby walls and standee rail. Armand Carroll, Architect.



BEFORE AND AFTER. The Co-ed Theatre in Fairfield, Iowa gives a startling contrast on what can be done with a little ingenuity. The ceiling beams have been acoustically stepped. The former square and ugly front corners have been rounded and the heating ducts put behind grilles. Modern draperies and side wall fabrics, complete the rejuvenation.



Much can be accomplished with an interesting stage setting properly lighted. Effects of depth, warmth and dignity are as attainable as cool frivolity and color by an intelligent use of draperies and curtains.

tear, and an abundance of dirt. Shall damask panels be installed again or is it advisable to have the panel arrangement removed, and a plain fabric used instead? Perhaps you may find it advisable to coordinate the scheme with a frieze, and further embellish it with other decorative members. The physical condition of the theatre, its shape and form, style, and measurements will determine the best treatment. When each factor is weighed carefully and the preliminary study is set down on the drawing board, there will begin to emerge a plausible, corrective scheme, from which to evolve the desired transformation.

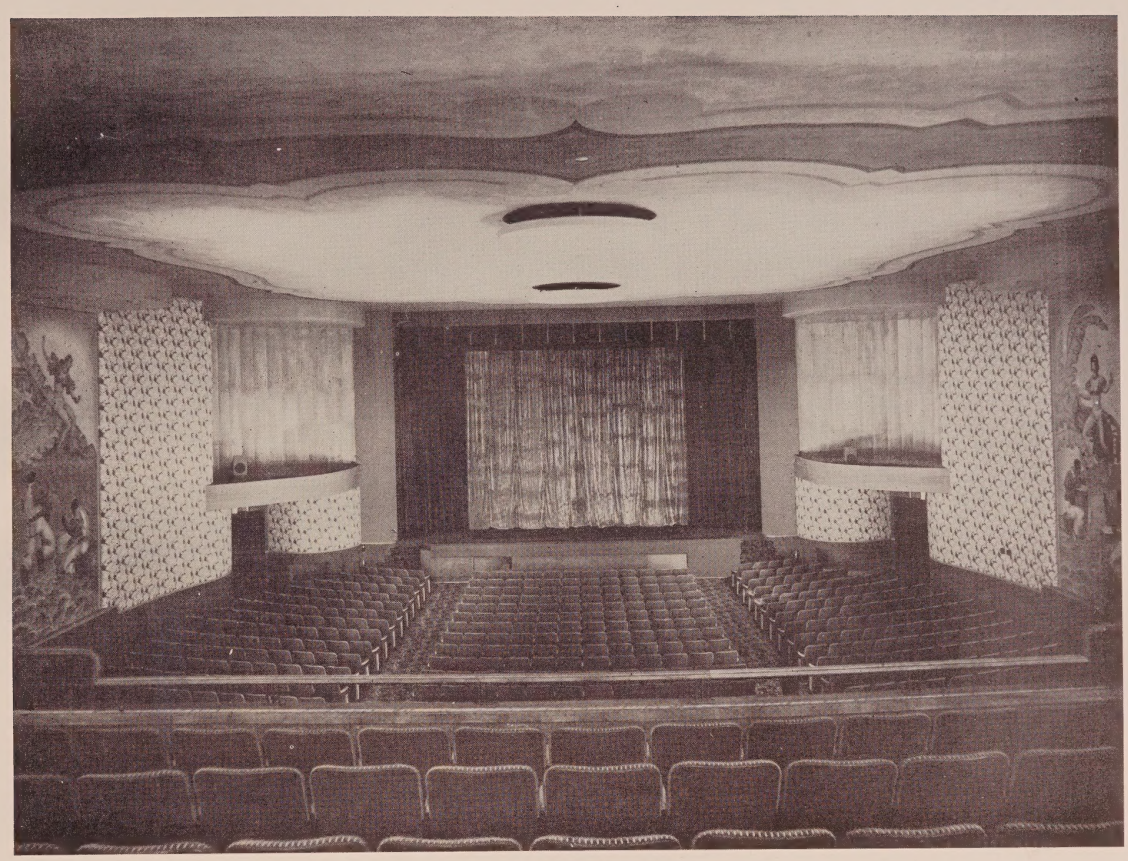
Many theatres play "bingo", "screeno", and other games. At such times, the theatres are illuminated, and all the physical defects of stage and interior are in full view. Is it psychologically advisable to emphasize the accumulation of dirt and deterioration that has occurred in the theatre? A new stage setting will brighten up the whole area, and avoid embarrassment. In designing the stage setting, it should be tied together in correct manner with the surrounding wall surfaces.

THE RESULT of indifference and negligence in maintaining theatre properties is typified by the presence of too many that are run down and dilapidated. Lack of imagination is no excuse for taking a short range view on this question. This has a deterrent effect upon the people who patronize them. Many people want to see a program, but they are not encouraged to go to a theatre in a run down and slovenly condition. They may not be articulate in their criticism but they see, feel, and manifest their thoughts in more ways than one. The competitive situation, as well as horse sense, calls for initiative and courage in this respect. Certainly, the part of wisdom dictates a more sensible and judicious consideration of the importance of keeping theatres modern and up-to-date.

A small investment in maintenance and occasional improvements exert a good influence on patrons. The feeling of change and newness always excites the people, and arouses curiosity and interest. It becomes a truism that the public consciously and unconsciously observes these changes and feels that management is on its toes looking after their comfort and well being.

The program may be paramount, but the physical condition of the theatre, its atmosphere and appointments, is of exceeding importance. Do not underate this phase of theatre operation. When the atmosphere is clean, attractive and inviting, there is present an active force which tends to stimulate box office receipts.

A. I. Kessler, Novelty Scenic Studios, was born in New York on Aug. 30, 1894, and has lived there all his life except during the two years when he served in World War I. Then after 18 months in France, he was cited by General Pershing for extraordinary and conspicuous service. He has been in the decorating and draperies business for 22 years, and approximately 6000 jobs have passed through his hands. Among the largest of these assignments are such public installations as the Public Auditorium, Cleveland, O.; Civic Auditorium, Kalamazoo, Mich., and the Convention Hall, Atlantic City, N. J. Among the foreign contracts were those for the largest Theatre in Singapore, British Malay States, and one in Bangkok, Thailand. Married, he is the father of two children.



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But priorities will **NOT** *prevent us from redecorating and refurnishing your theatre*

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by Louis D'Arclay

COULD IT BE that this war we are fighting will help to bring the decorating or redecorating problems of our motion picture theatres to a new and long desired standard, *Restraint and Simple Dignity?*

There is no doubt that with the priority laws there will be a considerable shortage of available materials. This shortage is bound to have a desired reaction towards restraint and simple dignity. Creative minds will have to find other media than the garish ornamentations of other days for decorative backgrounds.

When the motion pictures first came into their own, it seemed that the exhibitors felt that they had to enshrine this new, big, money-making child; so cathedrals and palaces were erected to the great awe of the public.

IT IS STRANGE, that with all the revolutionary methods already then in use for the redecorating and refurnishing of homes, the designers of theatres or their owners did not realize that a picture theatre, being as different from an opera house as their media of entertainment are, should from the start have had an interior decor with a character all its own. All this splendor, in many cases more gaudy than the long favored Austrian Baroque, could only be gazed at for a few minutes before or after the start of a program. Certainly once the house was dark, it would only become a horror of a nightmare casting frightening shadows. Taking this into consideration, the front of the picture theatre, its lobbies and social rooms are far more important to be given decorative character than the auditorium.

It is most important, of course, that the exterior of a theatre should be arresting and should shriek: "Here I am, a place of entertainment where you can relax . . . come in and enjoy it."

In the old days, a theatre had a front decidedly its own. Today, this very necessary feature is being lost most of the time amongst shops and offices. This is due naturally to the prohibitive values of real estate. But couldn't we do better than the proverbial "marquee" and "uprights", no matter how well designed, to attract the public's attention? Why not get the building owners to give us more scope? Even though we might be restricted to the space allotted the actual entrance to the theatre, why not get the building designed (or altered, as the case may be) so that we could carry up far enough an outdoor theme that would somewhat conform with the character of the theatre inside? In this manner, even though incorporated within a large building, the theatre would seemingly be detached from the rest of the structure, and have a front all its own.

ENTERING THE THEATRE, we are now faced with the problem of decorating with shortages in materials. Wall coverings of rubber, linoleum, and other fabrics of this type are necessarily taboo; so are metal trims. However, we still have at our command a few friends to help us in our decorative schemes. Among them is paint. Let's make sure we give it full scope. Ever since man began erecting and ornamenting buildings, it has been a most important factor, though for some time it seems to have been denied its rightful place in decorations to be replaced by overpowering garish ornamentations. Yet, paint is the most important factor in decoration, for no matter how architecturally perfect any room may be, paint is still the finishing factor which, if used with good judgment, will enhance any subject. All by itself, paint can beautify any plain surface. For example, a piece of ice by itself is glum, but in front of a brightly painted article it immediately becomes as beautiful as a piece of crystal. Paint is an easy medium because it is so elastic. And most important, too, paint is comparatively *cheap*. So let's talk paint and prove to ourselves that, especially in these times, we must take full advantage of its possibilities.

I said before that paint is elastic. By this I not only meant as a factor for color, but also in the sense that paint can take the place, and very effectively, too, of plaster ornaments and even metal mouldings. What we used to paste or nail on, let's paint on. We will realize then that we are approaching a new era in theatre decor that will bring us close to the so desired *restraint* and *simple dignity*.

We must not be afraid to give paint its full scope. Paint gives us color. Let us use color and not be afraid of it. For a theatre must prove to be a place of amusement. Therefore, let our paint be brilliant, and our colors in strong contrasts. This is easily done providing one uses good taste and common sense. By common sense I mean that though color schemes should be brilliant, there should not be too many schemes in the same building. By good taste, I mean let us start impressing our clientele with the fact that the finer things are *simple* and that *restraint* is the important factor thereof.

INSIDE THE THEATRE we have three main subjects: The lobbies, the auditorium, and the lounge. Let's take these subjects as in most cases we meet them.

The lobby, being mainly a passage way, is therefore secondary in decorative value. Its main feature should be brightness, to give the public immediately the uplift for which they have paid admission. This can be achieved with gay colors, mirrors, and, when possible, some flowers giving a note of welcome.

The Auditorium is of course the most important part of the house, but, to my way of thinking, the part that should be treated as simply as possible, so as not to have any disturbing elements detracting from the chief subject, the picture. I have talked this matter over with several exhibitors, and I think that most of them are afraid to have the courage of their convictions, and to simplify their auditoriums to a minimum of decor, thinking that their patrons would feel cheated out of the "luxurious" environment they have been accustomed to expect.

Yet why not school the public towards the appreciation of simple walls with good proportions and restrained design, with a proscenium frame that will enhance the picture instead of detracting from it? Because, once this is achieved, the walls become just what they should be, secondary.

For treatment of walls I think that paint is again the better medium. It is understood that fabric wall coverings have long been a favorite. If these must be used because of the accoustical treatment of the house, why not use simple ones, void of design? In most cases the patterns in damasks, etc., are far too small for the large spaces to be covered, and they become spotty and insignificant. As for using two or three different sets of wall draperies in fancy arrangements, that to me is just so much money thrown away.

I HAVE ALWAYS FELT that the walls of picture auditoriums, especially in the smaller houses, should be treated as if they almost disappeared. Therefore, the simpler their architectural treatment, the better. Here again color is what counts. I don't advocate black walls by any means, as they would be far too gloomy, but a color that, when the lights are out, will make people feel as if they were sitting within an indefinite horizon. Ring

the luxurious note into the comfort of the seats, the spacing of the seats, and the color scheme used in the different subjects making up the auditorium.

If, because of the architectural type of the house, it is felt that it is important enough to carry the particular type of architecture into the auditorium, let it be done with restraint and simplicity by merely suggesting it in the design of the proscenium arch.

In the lighting of the auditorium, let us take full advantage of the art of concealed lighting. Why disturb the walls with out-of-scale fixtures? When we have come to realize that the treatment of the stage is the important factor, let us dramatize it with lighting, and bring out when the lights go up the full value of the care taken in the designing of the screen shrine.

The Lounge is really the room where money should be spent. And do not forget that with money well spent, a lounge done in good taste with sparse decorations, besides being smartly handsome, will be cheaper to execute than the garish type.

PEOPLE NO LONGER want to live in fairyland. They want actual reality. Since the day the studios realized this and the importance of "correct sets", they have been showing the motion picture theatre public how the other half of the world lives. Interiors true to type have been built and decorated by specialists, befitting the action and the type of characters in the play. But the pleasure of enjoying the view of beautiful rooms for Mr. and Mrs. Average Public stops just as soon as the picture comes to an end. Why not go a little further than the studios, and give them a chance to enjoy sitting in a lounge room that, instead of reflecting unnecessary grandeur or, as is often the case, being cold and unfriendly or gloomy and forbidding, will reflect some of the good taste in architecture and decor of a smart living room? The exhibitor will realize soon that no matter which part of town his theatre is in, the clientele will appreciate his efforts. They will feel that he is responsible for giving them a taste of the life that they have seen so often portrayed on the screen.

To arrive at the desired result, not only should restraint and simplicity be used in the architecture and furniture, but also attention should be given to color. Just as it hurts the eye to go from darkness into the light, just so does going from one color room to another give a jolt. Three colors well chosen and used with good judgment throughout a job where three rooms sort of run into each other is far the wiser course than having completely different color schemes for every room. These three colors must be in strong contrast to each other, but, of course, chosen so that in interchanging their values they will remain in harmony with each other.

NORMANDIE THEATRE, NEW YORK, N. Y., boasts of a smart club room which befits its Park Avenue location and upper class clientele.

THE FIRST TIME I was given a chance to put these convictions into practice was when I was called in as color consultant for the Normandie, New York, and also asked to design the Lounge.

Because of the beautiful modern simplicity of the auditorium, I decided to make the lounge a smart club room. Therefore I designed large sofas, some as long as 10 feet, luxuriously upholstered in red leather toning in with the upholstery used for the seats in the auditorium. Other easy chairs were designed and upholstered in fabrics complementary to the color of the sofas: a rich brown for the outside backs and a dusty pink for the inside backs and seats. Side chairs, because of their position in the room, were upholstered in the same red leather as the sofas, thus bringing that color forward into the room. A buffet, to be used as a coffee counter, was painted in brown lacquer to match the brown of the upholstery. The center table and all small tables had the same color brown bakelite tops, but with gilt iron bases to repeat the color of the columns forming part of the architectural background of the room. These columns in turn had taken their color from the auditorium walls. The balance of the club room walls was painted a paler shade of dusty

ST. JOHN'S THEATRE, JACKSONVILLE, FLA., received an exploitable lounge in the Magnolia Room designed around the flower common to that area.

pink. This decorative scheme was completed by the carpet, the design of which incorporated all the colors mentioned above.

The success of this room, due to its restful *simplicity* in design, its *restraint* in the use of but three basic colors, all complementary to those used in the auditorium, certainly proved the correctness of my convictions.

The proof of this sagacity was again realized when the decoration plans for the St. John's, Jacksonville, Fla., were discussed by the owner, Arthur J. Siegel, the architect, Robert Collins, and the writer. We decided to try an even more daring experiment. The lobby and the foyer were to be very simple and the auditorium void of any ornaments, but all striking in color combinations. We were going to concentrate for decor on the lounge room only.

This lounge was to be a smart living room for people to enjoy while awaiting friends, or for a chat before or after a performance. We decided to go even a little further and *name* this room, to get away definitely from the common use of the word "Lounge". This room with a name would, of course, have to have some relation to that part of the country in which the theatre was being built, so that the public would be familiar with the name. After some research, it seemed that the magnolia blossom, so prolific around Jacksonville, was the ideal theme to use. So we named the room the Magnolia Room, and the management had an angle for exploiting their property.

When this was decided upon, the balance of the scheme followed easily. The magnolias were used as decorative paintings on the walls. The architectural background to complement these had to be relative to the south also. Therefore, I chose the Colonial period as my medium.

IF THESE TWO MEDIA had been carried out to their full realism, the architecture of the room would have been heavy with mouldings and the magnolia tree decorations overpowering. But bearing in mind *restraint* and simple *dignity*, I merely suggested them. The Colonial architecture was represented only by the mantel and the "shutter" type doors; the magnolia tree decoration reduced to a minimum of realistic value.

The whole color scheme of the theatre was also to be entirely local, with the use of the green of the palmetto leaf, the blue of the jacaranda tree flower, and the red of the persimmon. These three basic colors were used throughout the theatre. The lobby and the foyer have persimmon walls, carpeting with field of jacaranda blue, and border of palmetto green with inlay of persimmon. The auditorium has blue walls with wainscot of darker blue, and jacaranda blue carpeting; the seats are covered with persimmon mohair; the stage drapes have legs of palmetto green velour, draped back with large iron scrolls painted persimmon. The walls of the Magnolia Room have a soft pale green as a background for the magnolia decoration; the woodwork and ceiling are the eggshell color of the magnolia blossom, as is the furniture, with upholstery in shades of greens and persimmon; and the carpet has a leaf design executed in shades of green.

Many times manager Mandel has been stopped by patrons on their way out, to be complimented on the restful atmosphere of the theatre.

Now with the motion picture theatre business at an all time peak, and with redecorating budgets having a limited purchasing ability, this new treatment of *restraint* and *simple dignity* that I advocate will certainly be an easy medium for the many theatres that will be remodeled in the near future. In discussing remodeling, let's take the problems of the smaller houses first. The renovating of these houses to a standard of good taste can be a simple matter.

I don't know why, but it seems that most of the small houses have had a predilection for the Tudor type of interior for their auditoriums. This may be a very smart medium when well executed, but, sad to say in most cases, they tried to obtain these results by using drab colors and rough cast plaster. Using the same amount of cash, these theatre owners could have achieved a much more direct decor by concentrating on *color*. There is no need for any more ornaments, just the same plain walls, but painted with colors that really spell happiness. This color sense, of course, applies not only to the walls but, as stated before, from the carpet, up through the seats the walls, wainscot, and stage drapes. No matter what type the clientele, it is bound to enjoy sitting in an environment of happiness, so why give them grim walls and setting when the happier medium doesn't cost any more?

Louis D'Arclay was born in Belgium. His first love was architecture, which occupied his early schooling. He then turned to the stage and, after two and one-half years in the World War, came to this country and went into motion pictures, as he puts it, "to learn English." After an interim of fair success on the legitimate stage, he went back to his calling by applying his architectural knowledge to the decorating field. Among his prominent works are important homes and apartments in the east and on the west coast. Two of his most important contributions to theatre decorating are the Normandie, New York, and the St. John's, Jacksonville, Fla. Each was an outstanding achievement of its year.

Why use the stereotyped color schemes advanced by the ordinary paint contractor, with his prolific ornamentations of stencils? We know that one color paint doesn't cost any more than another, so why not consult a color specialist who will give interesting color combinations and the right type fabrics? For example, one certainly would never think of asking the painter to supervise the sound installation nor the wiring of the theatre. So don't just leave the decorative schemes to a painter who also calls himself a decorator.

Don't forget that one pays for what he gets. Be sure that what is gotten will lift the house from the "average" class up to the standard of the Theatre of Tomorrow—*color* and *rhythm*, with *restraint* and *simple dignity*.

MR. AND MRS. AVERAGE PUBLIC *want* to be educated, and it is the exhibitor's duty to do it. Motion pictures are one of the three largest industries in this country, and the easiest and most approachable means for helping to educate the public to the good taste which in our era has become second to none in ways of living. Let's not say, "This is good enough, they won't know any better." Let's say, "We are going to show them that we appreciate their patronage and value it so highly that we want them to enjoy our offerings in the utmost comfort and smartest of surroundings that our budget can afford."

Some of the smaller houses have thought that they should go in for what they call "modernistic" decoration. What a word! And most of the time, what a result! A cold and drab auditorium which, even in the hottest climate, would make one shiver.

Personally, I have never wanted to design two homes alike. I think that the same principle should be applied to the designing of theatres. Certainly anyone with imagination can use some local theme that will make the clientele of that particular section feel "at home" when frequenting the house. And that is our great point when it comes to giving the house a new face. Here again there is no necessity of spending a lot of money; nine times out of 10, a color scheme will do the trick. Perhaps some alterations will be necessary, such as the removal of Romeo and Juliet type balconies and other unessential ornamentations, a little attention paid to the designing of the stage frame, and a color scheme. With

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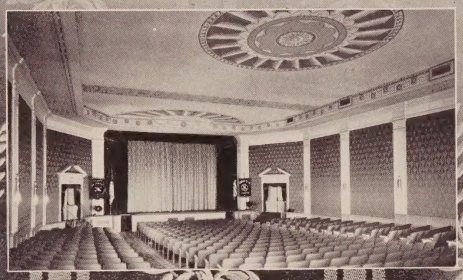

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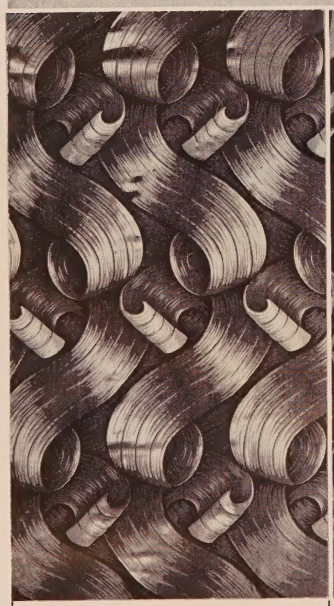

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a few dollars well spent, I feel quite sure that the owner of that kind of a theatre will be plentifully repaid for his efforts.

EXHIBITORS certainly have a duty to perform. Each theatre's clientele gives a very good income indeed. It is your duty to see to it that not only is the patron given good pictures, but also an adequate environment in which to enjoy them. Redecorating will, first of all, create an interest which will bring dollars into the box office. Charlie and Mabel will tell Harry and Flossie, and they in turn will tell dozens of others that their favorite neighborhood playhouse has finally been brought up to the standard of "sets" they have enjoyed in motion pictures.

Redecorating may not be as simple in the bigger houses, because many of them are leftovers of bygone days, legitimate houses, or some of the "palaces" mentioned at the start of the article. Yet here again a little "ax" work and paint will help a lot. Take off all the gingerbread and gilt, simplify the draperies, give the whole an adequate color scheme, and one will have arrived at a very much desired restraint without complicated alterations.

But don't stop alterations at the stage. I have seen a few cases where exhibitors thought that by giving the stage a "modernistic" appearance, they had lifted the face of the entire auditorium. This mode of renovating is worse than if nothing at all had been done. It only accentuates the gaudiness of the balance of the house.

In houses where it is felt that the wall surfaces are too vast, and that because of the scarcity of materials available walls cannot be given the new shapes desired, some medium has to be used to break down space. In these cases, decorative painting may help. But instead of being executed in multicolors, it should be done in tones of the same color. This type of decoration will be very effective when the house lights are on, yet not at all disturbing when the house is dark. Here again the specialist will prove his worth, monotones being a very delicate treatment requiring expert handling in restraint designing and execution.

The Theatre of Tomorrow handled in this fashion will certainly lift the public to a higher standard.

The pendulum swings.

We must bear in mind that the "frills" of yesterday have disappeared in all modes of living. So let's by all means do away with them in what has become America's greatest medium of entertainment, the motion picture theatre.

THE FAULTS IN OVERACCENTUATING

Planned Acoustics

A practical theatre architect, faced with modern building needs, offers sound advice from his theatre construction experiences.

by Michael J. DeAngelis

SINCE THE COMING of sound a new problem has appeared on the horizon to plague the already overburdened theatre architect. "Acoustic Analysis" becomes of paramount importance to architects who specialize in theatre work.

In the past, acoustics was largely a matter of selecting from a limited number of materials tested for sound absorption co-efficients. But with the knowledge now known and introduced by such pioneer devotees in the field as the late Professor Wallace C. Sabin, Harvard University; Dr. F. R. Watson, professor of experimental physics, University of Illinois; Dr. Paul Sabin, Messrs. Clifford, M. Swan, and others, the acoustic problem is now considered as a highly specialized profession. The architect has at his disposal today a large new list of materials with attendant sound absorption co-efficients properly recorded and compiled with no less a guarantee than that of the Government Bureau of Standards in Washington, D. C. This list of materials ranges from marble to hair felt.

Some old examples of auditorium were (and are) notable examples of good acoustics, and still the architects designing them never heard of acoustical treatment. One must bear in mind the materials used for building purposes at the time these houses were built. The old plaster and stone are found to be vastly more porous and, therefore, possessing sound absorbent qualities.

Michael J. DeAngelis received his education in Rochester schools, and attended the University of Rochester and Columbia University. Although he is only 36 years old, he has many theatres to his credit. He is noted for his modern trend in design, and has been cited for some of his most extreme modern applications. Widely known through New York State as well as in other parts of the country, he has received his registrations through many of these states by written examinations.

THE ACOUSTICS of the present New York Metropolitan Opera House could scarcely be anything but very satisfactory, since its architects automatically and unwittingly did many of the very things that a good acoustical consultant would recommend now.

When an architect is commissioned to design a theatre, his mind, naturally, first turns to the plan and section of the auditorium proper, and he must evolve a pleasing design for both. Finally, after the usual struggle for something good, he arrives at a more or less definite conception, and the results attain the status of a "working sketch", upon which the final working drawings will be based. Then he should call in a competent acoustical consultant, the first step being to examine the plan and section for proper surface profiles to gain the most desirable acoustic qualities, and make his recommendations accordingly. In many instances, he may approve them immediately, and in others he may recommend that the entire ceiling be lowered or raised, as the case of the Eastman, Rochester, N. Y. He may modify the shape of the ceiling; or he may change a few wall curvatures to eliminate sound foci or dead spots.

The broadcasting studio with its extreme demands for perfect sound can be as angular and unorthodox as one chooses, because it is a backstage room with the audience thousands of miles away; but a theatre is something different, although good sound must be maintained. I have found in my experience that if an architect lets the acoustic engineer run wild on his recommendations, the finished product of the interior would be so distorted in design, with the extreme acoustical curves and odd angled plans, that the theatre auditorium would hardly be recognized by the patrons.

The writer designed the first theatre that is located in up-state New York to use sound, or talkies, as they were

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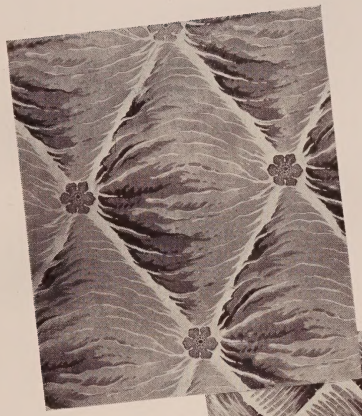

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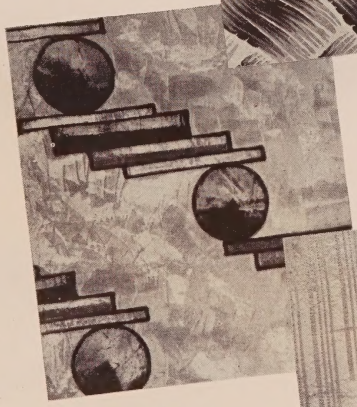

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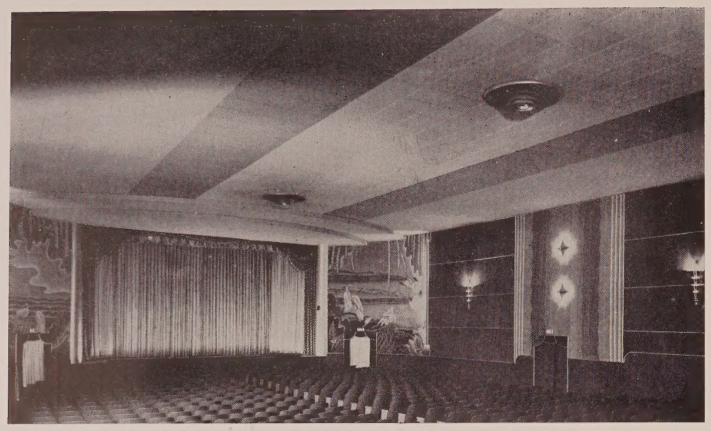
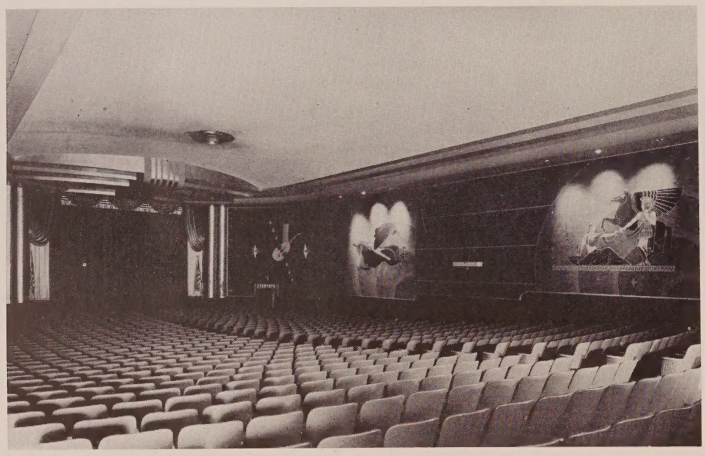
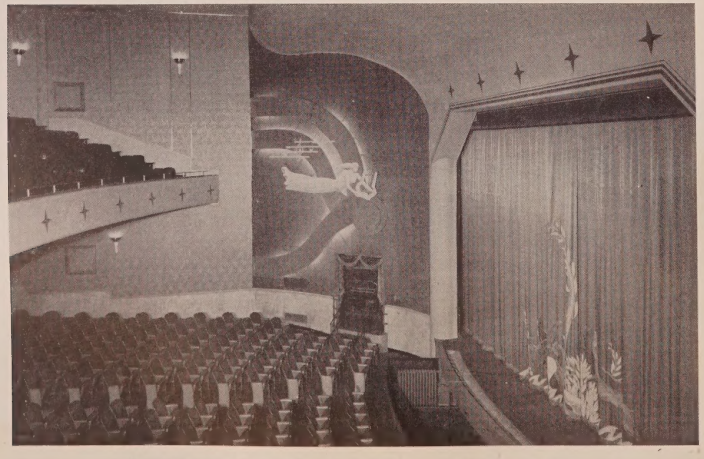


STAR THEATRE, TONAWANDA, N. Y. Michael J. DeAngelis, Architect.



APOLLO THEATRE, BUFFALO, N. Y. Michael J. DeAngelis, Architect.



COLONIAL THEATRE, Elmira, N. Y. Michael J. DeAngelis, Architect.

better known in those days. This was the Riviera, for Harry Gilbert, Syracuse, N. Y. This theatre was designed with talkies in mind. The writer first designed the theatre in all its details, and then submitted them to Professor Sabin for recommendations. The plans were approved, and no changes were suggested. On this project, we used acoustic plaster ceilings in a three-point centered arch, and while this was not a true elipse, it turned out very well. Although a true elipse would disburse the sound foci more efficiently, in those days one didn't go into perfect details. This theatre today is one of the outstanding projects as to design and sound, and is looked upon as a perfect acoustically treated theatre.

Acoustic plaster is one of the first means of treatment for theatres, and is one of the best standbys today, although numerous other materials have since been manufactured, and are equally as good.

As time progressed, a great deal was learned about designing houses with acoustics in mind, and the writer always found that flat surfaces with a stepped down effect on the ceiling worked out very well. Materials such as acoustic board Celo-tex, Temlock, Acoustone, and many others were introduced. They all have their place in the theatre. Theatres such as the Star, Tonawanda, N. Y., and the Grand, Westfield, N. Y., designed by the writer, used a Temlock ceiling in various bands of color, with a flat surface in the center and a dropped ceiling on the sides towards the walls, and also used fabric on the side walls with rock wool backing on the rear walls only. These projects are all acoustically correct, for sound and distribution is perfect.

The Apollo, Buffalo, N. Y. for Basil Brothers, is a very interesting theatre project. In Buffalo, all new theatres must be fireproof. Therefore an acoustic plaster was used on the ceiling in various lines on the side walls to form a stepped down effect with a slightly curved ceiling and radial bands stepped down from the stage outward. The walls were treated with flame proof fabric, and the rear wall with valour and rock wool backing. This theatre today is one of the most pleasing designs this office has ever turned out, and acoustically is a gem. Incidently, the writer did not have a consultant on the amount of acoustical materials to be used.

In the re-designing of the Colonial, Elmira, N. Y., we had an interesting problem. This was an existing theatre, and the old balcony had to be replaced, and the interior remodeled. This theatre was never right acoustically. Therefore our problem was to improve the sound in designing the balcony. The author constructed a balcony front rail with acoustic plaster and round at the bottom, used a perfectly smooth plaster ceiling underneath the balcony, with a cove lighting strip across the theatre

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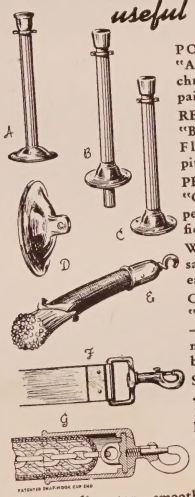

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parallel with the rear wall. The old theatre also had a sounding board forming from the proscenium arch. This sounding board was removed, and reverse two-way curved ceiling was designed. This ceiling was treated in a sand finished plaster (not acoustic), and this theatre, when it had its opening, amazed all the patrons of old, and turned out to be one of the best sound theatres acoustically in New York State, despite the fact that the owners would not spend the added expense for acoustic plaster.

ONE OF THE BEST COMMISSIONS this office has had is the Comerford, Carlisle, Pa., for the Comerford circuit. It was a new project, and typical of this circuit it wanted a substantial, well built, and artistic building. Owing to the large seating capacity, this theatre was rather long, and still the balcony had to be of a loge type. Therefore, convex side walls in plaster were designed with a flat ceiling and curved edges. At the stage, the sounding board was curved from the ceiling to the top of the proscenium arch, and the splay walls on each side of the stage were circular and outward into the side walls. The only fabric on the walls was used on the rear walls above the balcony with a rock wool backing. Although this treatment of acoustical design was somewhat departed from engineered acoustics, this theatre is one of the outstanding in Pennsylvania from the standpoint of sound and design.

It would be a fallacy if something were not said about the actual interpretations of sound, and the following explains the subject in more detail:

Acoustics of auditoriums deal with the behavior of sound in rooms in auditoriums and the conditions which determine their fitness or unsuitability for the hearing of speech and music.

The sounds proceed outwards from the source in spherical waves until they strike the boundaries of the room. At the boundaries, they are partly absorbed or transmitted to an extent depending upon the nature of the surfaces, but the remainder is reflected. Simple echoes may thus arise, and if any large portion of the surface is appropriately curved, objectionable focusing of sound may occur. However reflected, sound travels quickly, so that through numerous successive reflections, its energy is very soon more or less uniformly diffused throughout the auditorium, every element of volume being filled with waves proceeding in every direction. Again, since sound is a form of energy, when once produced in a confined space it will continue to exit until it is transmitted by the boundary walls or transformed into some other kind of energy, generally heat. Consequently, if the boundaries are hard and non-absorbent little energy is absorbed at each impact, and owing to the very many reflections which occur before the sound dies away, prolonged reverberation is noticed. With more porous wall surfaces, the ariel vibrations are damped out by fractional conversion into heat within the pores of the material, and reverbration is reduced.

ECHOES are not noticeable when the time interval between the arrival of the direct and reflected sounds is less than about 1/15 of a second or, in other words, when the path difference is less than 75 feet. According to Ernst Petzold, this time interval should not exceed 0.05 second. In fact, it may be considered that reflected sounds arriving within this interval contribute usefully in raising the level of loudness, whereas those arriving later are undesirable, and should be enfeebled as far as possible by absorption or scattering. Echo effects thus occur only in large auditoriums. They should be avoided in design, or minimized by applying absorbents to and breaking up the continuity of the surfaces which give rise to them.

It is not sufficient, however, that there be adequate loudness in an auditorium, and that foci and definite echoes be avoided. Indeed, the most prevalent defect encountered is excessive reverbration, sound being reflected to and fro without sufficient weakening. It is most marked in large auditoriums, and arises from deficiency in the sound absorptive character of the surfaces.

It was frequently thought that defective acoustics in an auditorium could be cured by stretching wires to and fro near the ceiling. Whatever may be the value of such wires, and it is very doubtful whether they have any value at all, they do not reduce reverberation. There are instances where miles of wire have been employed with no useful effect.

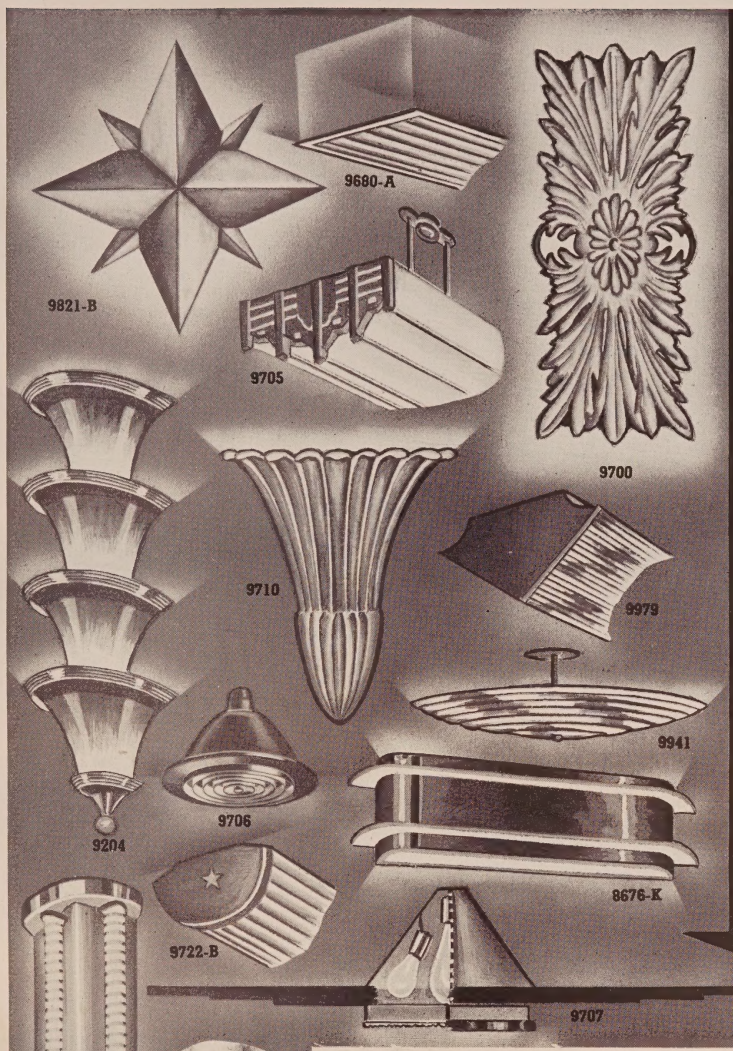
There is a very satisfactory formula, due largely to W. C. Savin and G. Jaeger, that is satisfactory, and has been conformed repeatedly by experiment. It is found that if V is a volume of room, and if the surfaces of total area S absorb on an average a fraction of A of the sound energy at each incidence, then the standard reverberation period T in which the reverberant sound decays one million fold is given by $-T = 0.05\ V/a.S.$ in foot second units. In the formulae, the mean absorption co-efficient "a" of the surfaces of the auditorium is calculated from the absorption S1, S2, S3, etc. having respectively absorption co-efficients, A1, A2, A3, etc., then $-A =$ A2 S1 plus A3, S3 plus. From this formula, it is seen that reverberation may be decreased by reducing the volume of the auditorium, and by increasing the absorbing power of its surfaces.

Air conditioning systems in theatre auditoriums should not be overlooked by the architect, and special care should be given to their design as a marked effect is bad on acoustics in air conditioned enclosures. The intelligent application of air conditioning equipment sound data requires an understanding of the fundamentals of architectural acoustics as applied to air conditioning enclosures.

Although every engineer realizes the importance of the noise problem when designing heating, ventilating, or air conditioning systems, he is usually compelled to resort to judgment, backed by past experiences in dealing with sound questions, since complete sound data for most equipment is lacking. Lately, however, a very comprehensive treatise has been issued on this subject, and all data is available. The architect and engineer hence have at their disposal information that heretofore was purely guess work.

Since the acoustic properties of an auditorium depend upon many features other than reverberation such as shape, size, distribution, and frequency characteristic of absorbent material, reduction of noise and the particular uses contemplated, it is recommended by the author that the services of a qualified and experienced theatre architect be retained.

★



VOIGT COMPANY

(Established 1903)

Illuminating Engineers

Designers and Manufacturers

1743-47 North 12th Street

PHILADELPHIA, PA.

A HIT IN ANY THEATRE—

7915-F—Illuminated mirror & drinking fountain
7915-TC—With cooler and compressor
7915-M—Magic automatic water control

Look under this card for added details!

Illustrations are to approximate scale (1" equals 1') and are typical of many we have to offer. Consult Voigt for Decorative Lighting Ideas. Sketches submitted on receipt of plans or requirements. Write for estimate on your own designs.

*** 8676-K** Wall Bracket with edge lighted plate glass fins. Indirect Lighting.

***† 9680-A, *† 9705, *† 9722-B, *† 9979** Glass enclosed Fluorescent troughs for 18", 24", 36" and 48" lamps and continuous lengths. Also cove and strip lighting channels.

9204 Indirect Wall Bracket available in 1, 2, 3, 4 or more sections. Four sections illustrated.

***† 9700** Decorative Plaque of Compolite indirectly illuminated with Fluorescent or Incandescent lamps.

9706 Efficient, inexpensive recessed ceiling downlight with reflector and concentric louvre rings. Uses regular lamp bulb.

No.	*Watts*	*Insert Size Dia.*	*Deep*	*Face Size Diameter*
9706	300	13½"	11"	15⅛"
9706-A	150	10½"	9¼"	12¼"
9706-B	100	7½"	7½"	8¾"

9702 Semi-Indirect Wall Bracket with half cylinders of White Alabaster glass. Available in 1, 2, 3, or 4 sections. Two sections illustrated.

*** 9707** Air Conditioning Diffuser and Lense Light. Combination dual-purpose unit reduces number of openings and fixtures on ceiling. Sizes 24-30-42-60 and 72" diameter.

9710 Wall Bracket of Compolite for Indirect Lighting. Accommodates R-40 Reflector Flood Lamp on one circuit for bright white house light; separate circuit for auxiliary lights for dim color light during show.

† 9712 Lighting is softened, made colorful and decorative by Plasticoils which cover the bare Fluorescent lamps. For 18", 24", 36" and 48" lamps.

† 9821-B Indirect Illuminated Star. 12", 24", 36" spread and other sizes.

9941 Etched circular bands on opal glass create smart appearance in a ceiling fixture of plain modern design.

* For wall or ceiling mounting. Available in other forms, shapes and sizes.
† Use as ceiling fixture; also vertical or horizontal wall bracket.

Send for descriptive sheet giving complete detailed information, dimensions, lights, finishes and prices on all numbers illustrated.

Two circuit wiring is available on Voigt theatre lighting providing two intensities of illumination; No. 1, white house light for general use and No. 2, dim color light for decoration during the show.

Voigt Products and Voigt Services can be ordered direct—and thru all branches of the National Theatre Supply Co. and all Independent dealers.

CHARLES J. WINSTON & CO., INC.

LOEW'S COPACABANA THEATRE
RIO DE JANEIRO, BRAZIL

Lighting Fixtures •

are a distinguishing mark of good taste and decorative beauty. They are the jewels in any Architect's or Decorator's setting of the general scheme for a theatre — and should therefore receive the utmost care in selection and placement. This is our special service to the theatre industry.

AMONG OUR 1941 THEATRE ACCOMPLISHMENTS:—For John & Drew Eberson, Theatre Architects: Butterfield Circuit's Strand Theatre, Lansing, Michigan; I. G. Hoffman's Capital Theatre, Milford, Conn.; Quittner's Eastwood Theatre, East Hartford, Conn.; Schine's Oswego Theatre, Oswego, N. Y.; Schine's Norwalk Theatre, Norwalk, Ohio; Schine's Ashland Theatre, Ashland, Ohio; Schine's Salamanca Theatre, Salamanca, N. Y.; Fabian's Cohoes Theatre, Cohoes, N. Y.; Prudential Circuit's Farmingdale Theatre, Farmingdale, L. I., John & Drew Eberson, Architects.

Years of study and close association with theatres and specializing theatre architects have trained us in theatre needs and theatrical effects.
Whether for a new theatre or for a future remodeling job, we welcome the opportunity to estimate and suggest lighting methods.

FOR 1941 THEATRE USE OF OUR FIXTURES:—Levy Brothers' Strand Theatre, Astoria, L. I.; Loew Circuit's Copacabana & Tijuca Theatre, Brazil, S. A.; Merrick Theatre, Jamaica, L. I., John & Drew Eberson, Architects; Kallet's Le Roy Theatre, Le Roy, N. Y., Michael De Angelis, Architect; Frank Livoti's Majestic Theatre, Brooklyn, N. Y.; Raybond Circuit's Rosedale Theatre, Brooklyn, N. Y.; Raybond Circuit's Empire Theatre, Brooklyn, N. Y.; Raybond Circuit's Queen Anne Theatre, Bogota, L. I.; Daytona Beach Theatre, Daytona Beach, Florida, John & Drew Eberson, Architects; Alvin Theatre, Pittsburgh, Pa., John & Drew Eberson, Architects.

Charles J. Winston & Co., Inc

IMPORTERS AND MAKERS
Distinctive Lighting Effects
2 WEST 47TH STREET
NEW YORK

A SERVICE
to Theatre Architects and Decorators:

● We welcome your inquiries and will be glad to suggest special fixtures, treatments and placements.

A SERVICE
to Theatre Owners:

● If you have a dull spot or a dark corner in your auditorium, lounge room or lobby, tell us about it and get our advice. There may be a very economical means of remedying the condition.

THE THEATRE CATALOG

★ 1942 ★

C

Theatre Exteriors

THEATRE EXTERIORS

THUMB-DEX
Patent No. 1579575

Imaginative Fronts

...THAT HAVE NEVER BEEN CONSTRUCTED

An assortment of sketches from many drawing boards, showing design techniques and constructive efforts of leading architects.

by The Editors

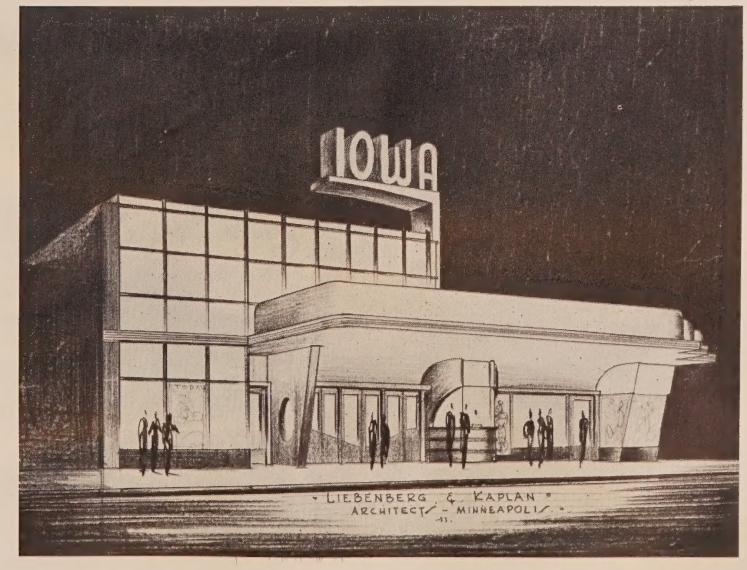
TOO OFTEN, the scarcity of construction dollars or the orthodox tastes of the owners, who need not necessarily be showmen, prevent the flashy, attention attracting fronts designed by skilled theatre architects from reaching completion. In hundreds of contacts with architects each year, the staff of THE ANNUAL THEATRE CATALOG has heard this lament expressed more and more often. As a result, it was decided to do something about it.

An invitation was sent to all specializing architects asking them to forward all such sketches so that they might be presented for the consideration of the industry at large.

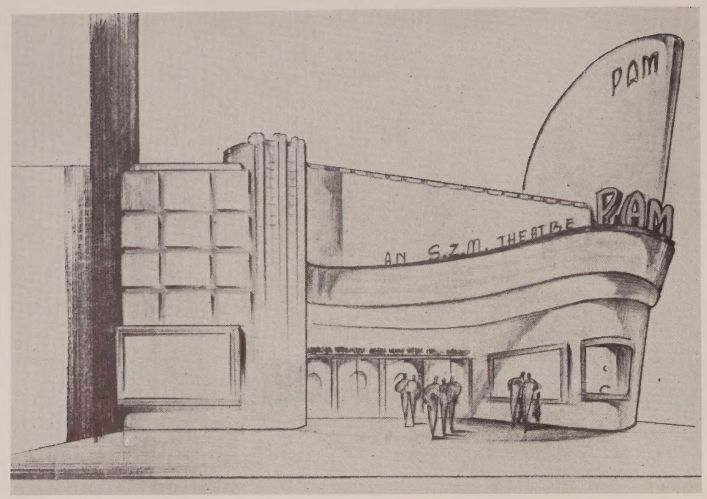
They cooperated enthusiastically.

Unfortunately space did not permit the use of all, so only a selected few are here presented. Many are possibly too extreme, too ornate, or too flashy for the present. All are original. And, among these selected few, may well be the schemes and basic ideas from which the theatre of the future will be developed.

THALHEIMER & WEITZ, Architects of Philadelphia submitted this very striking sketch for a theatre in a suburban community. The theatre was to become an integral part or center of the business district. The project was never completed.

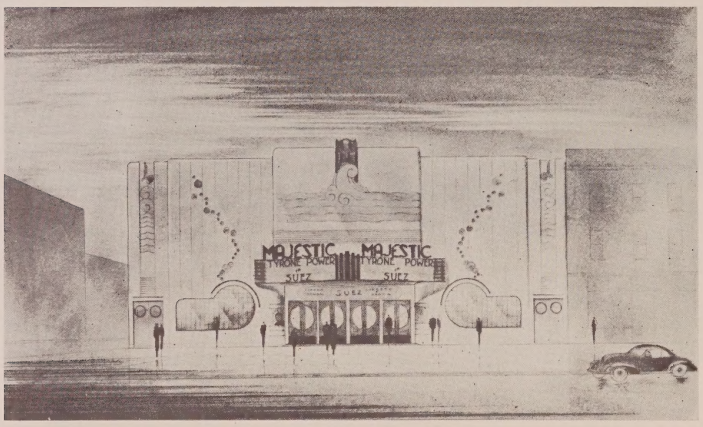


LIEBENBERG & KAPLAN, Architects of Minneapolis, designed this extremely modern front for a theatre in Iowa. No doubt a forceful, selling front would have resulted; but defense priorities intervened and the project was temporarily postponed.



SAMUEL ZOURI MOSKOWITZ, Architect of New York and Wilkes-Barre, Pa., planned to build this theatre for himself in Wilkes-Barre. The seating capacity was to have been 850, and construction of concrete, stucco, and structural glass. Defense priorities have delayed it.

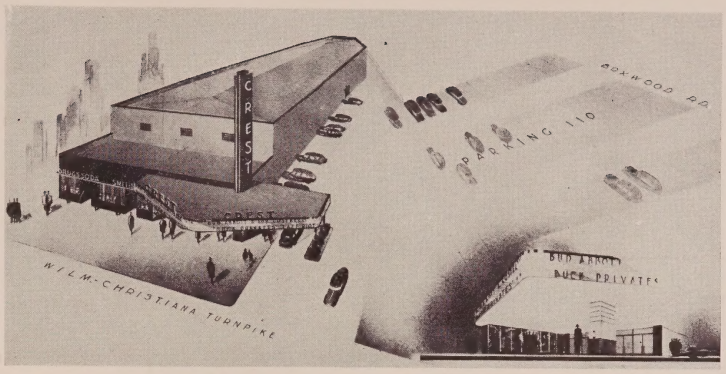
★



MICHAEL DE ANGELIS, Architect of New York and Rochester, N. Y., conceived this design for a theatre in Hornell, N. Y. It was considered too extreme by the owners and was therefore not accepted.

★

ARMAND CARROLL, Architect of Philadelphia, submitted this unusual sketch for a proposed theatre in West Reading, Pa. which is a residential suburb of industrial Reading. The theatre was finally built from other plans.

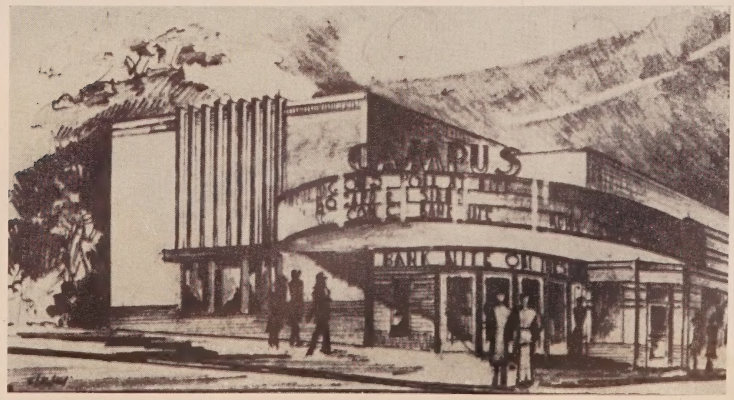


THALHEIMER & WEITZ, Architects of Philadelphia, recognized the value of parking space in this scheme for a theatre in Woodcrest, Delaware. The theatre unit was to be the center for future developments of stores, etc. where all patronage would come by motor. Other plans were accepted.

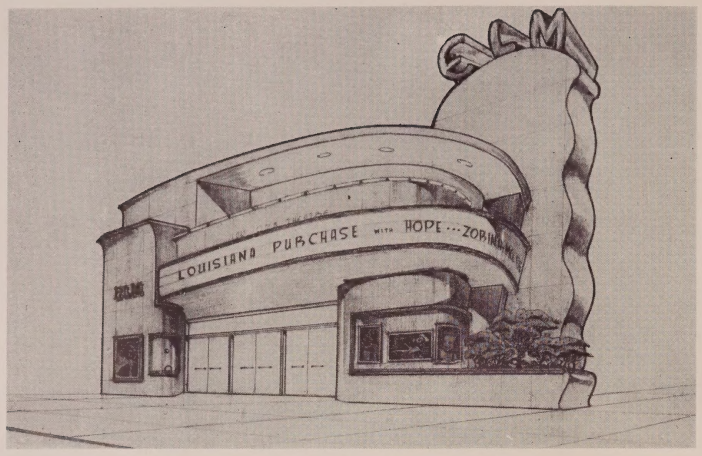
★

JACK CORGAN, Architect of Dallas, Texas, designed this decorated front for a theatre proposed for Little Rock, Arkansas. An attention stopper, it has just come off the boards but may be delayed by defense priorities.

★

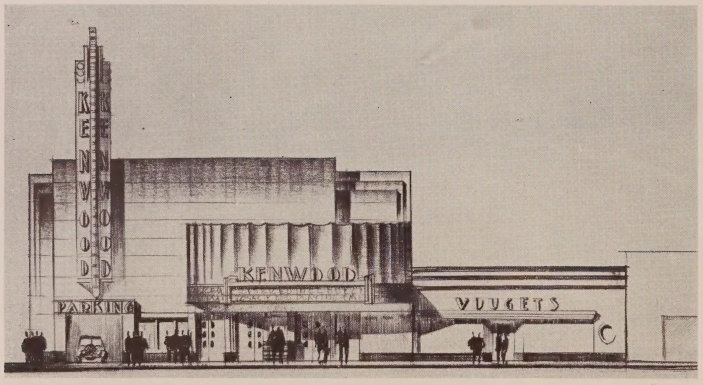


WETHERELL & HARRISON, Architects of Des Moines, Iowa, planned this theatre for Cedar Falls, Iowa. A suburban theatre for local patronage, its objective was to be homelike but modern. The project has been postponed " for the duration."



SAMUEL ZOURI MOSKOWITZ, Architect of New York and Wilkes-Barre, Pa., designed this theatre for a suburban area of Hazleton, Pa. The "setting hen" effect is most reminiscent of Hollywood; but a coal town would certainly have been conscious of it.

★



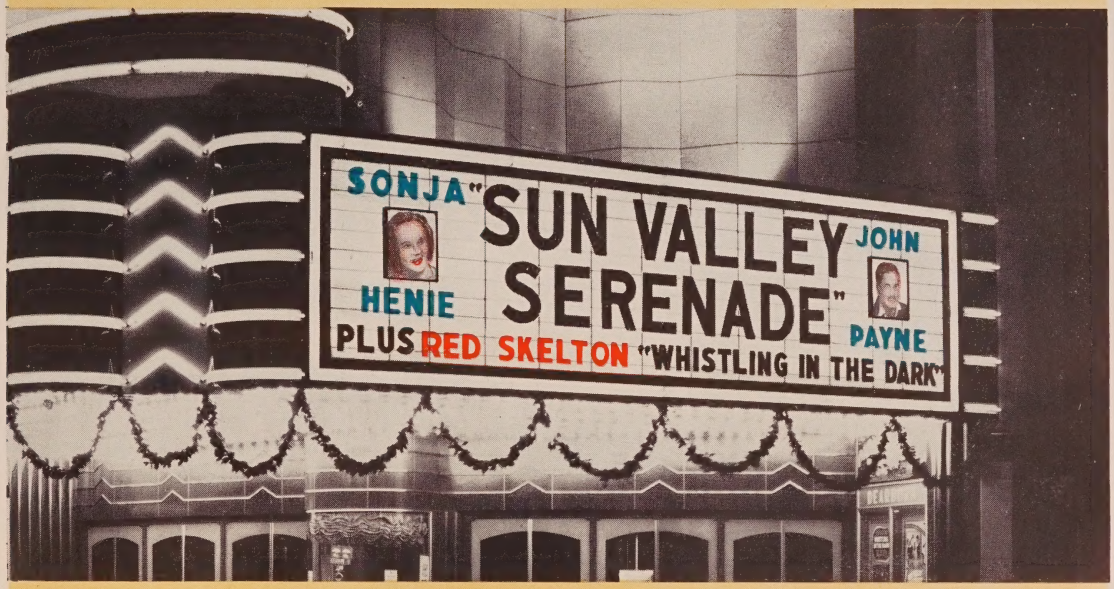
LIEBENBERG & KAPLAN, Architects of Minneapolis, incorporated parking facilities into the facia of this proposed new theatre. This may be an example of what can be expected in many future theatres. The project was postponed "for the duration."

★

LEO F. ABRAMS, Architect of St. Louis, Missouri planned this 1750 seat theatre for a better class negro section of St. Louis. The ornamentation was to have been done with black glass applied over lighter colored structural glass.

WAGNER'S SENSATIONAL NEW SLOTTED, CHANGEABLE PLASTIC LETTERS

DISPLAY EQUIPMENT FOR USE OF THESE LETTERS INSIDE OR OUTSIDE THEATRE — IN FRAMES, OR AS "STANDEE" LETTERS



TRANSPARENCY FRAMES AND COLORED TRANSPARENCIES

●

LOBBY DISPLAY FRAMES

●

FLEX-WORD UNITS

●

MULTI-SIZE SLOTTED, CHANGEABLE ALUMINUM LETTERS AND FRAMES

SEE FOLLOWING PAGES FOR DETAILS

All Originated By

WAGNER SIGN SERVICE, INC.

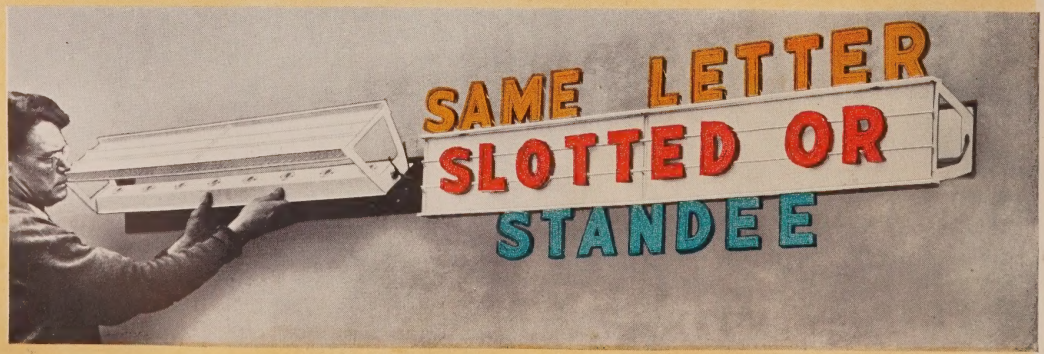
218 S. HOYNE AVENUE, CHICAGO

123 W. 64th STREET, NEW YORK

706 E. HANCOCK AVENUE, DETROIT

COMPLETE LOBBY DISPLAY UNITS . . .

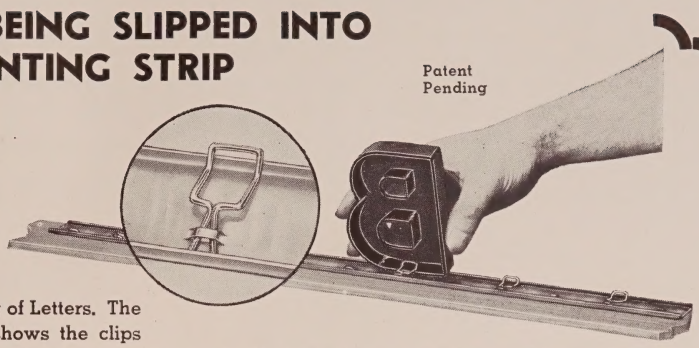
The above illustration shows the versatility of Wagner Lobby Display Units. The illustration below shows two Lobby Display Units: one complete with PLASTIC Letters, Frame, Opal Glass and Wall Plate is shown already mounted in position. The illustration shows the Frame of the other Unit being mounted in the Wall Plate. Simple and easy to install—just slip the top flange of the Frame into slot at top of Wall Plate and drop the flange at bottom of Frame into slot at bottom of Wall Plate. No bolts show. Note slotted PLASTIC Letters are mounted on bars in the Frame and, as shown, can also be used in "Standee" position on top of Frame and suspended from bottom of Frame. See photographs on opposite page for details of "Standee" mounting strips. The Frames for Lobby Display Units are of sheet steel with attractive white enamel finish; each Frame Unit is 48" long, 7" high, and has 8" wired lamp sockets. PLASTIC Letters are available in 4" and 10" sizes in Opaque Black and four translucent colors (Red, Green, Blue and Amber), slotted for use in Frame and as "Standee" Letters as well—or unslotted for use as "Standee" Letters only.



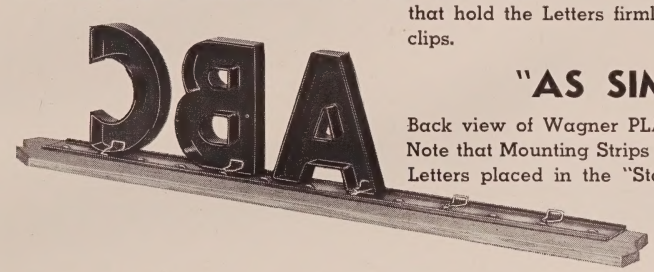
WAGNER SIGN SERVICE, INC.

"STANDEE" LETTER BEING SLIPPED INTO POSITION ON MOUNTING STRIP

Patent Pending



Wagner PLASTIC "Standee" Letters have a great variety of uses. The illustrations on the opposite page show them mounted in a Lobby Display Unit. In addition they can be used on any cove, sill or other foundation. The Mounting Strips are already drilled for mounting and are made with sufficient clips, correctly placed for proper spacing of Letters. The magnified part of illustration at right shows the clips that hold the Letters firmly in position. Just slip the Letters under the clips.

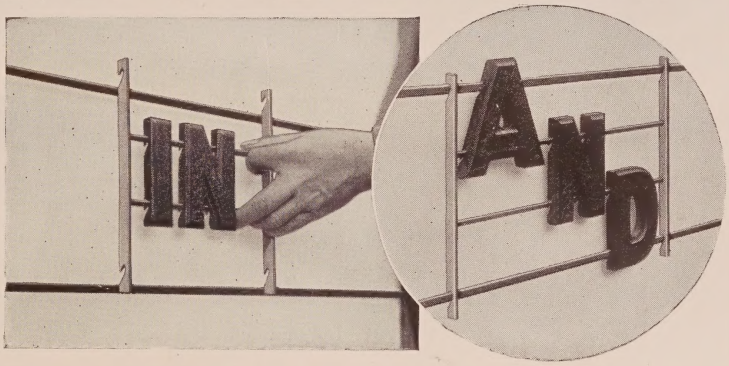


"AS SIMPLE AS A. B. C."

Back view of Wagner PLASTIC Letters in position on Mounting Strip. Note that Mounting Strips can be fastened on TOP of a surface and the Letters placed in the "Standee" position—or Mounting Strips can be fastened upside down on the UNDER SIDE of a surface and the Letters placed in suspended position.

ALSO EXCLUSIVE (Patent No. 2230873) THE WAGNER FLEX-WORD UNIT

The Flex-Word Unit consists of miniature frames that mount on the Master Multiple Frame. The illustrations at the right picture a FLEX-WORD Frame (carrying 4" letters) mounted on a Multiple Frame. Wagner 6" and 4" Letters are slotted with a uniform spacing between slots so the FLEX-WORD Frame carries either or both sizes. FLEX-WORD Frames are available in 8", 12", 16", 20", and 24" lengths for either straight or curved attraction boards. An invaluable aid to flexibility in arrangement of copy in the attraction board — saves space—permits better use of space —improves the display value of the marquee—and makes word-plates unnecessary.



Showing how simple and easy it is to use the NEW Wagner FLEX-WORD UNIT. The frame and 4-inch letters can be placed in one operation or the frame can be set in place first and the 4-inch letters placed afterward.

Above illustration shows the flexibility of use of FLEX-WORD UNITS—the 4-inch letters can be staggered in three lines as shown, or two straight lines of 4-inch letters can be used (one line above the other).

NEW and SENSATIONAL

THE WAGNER TRANSPARENCY FRAMES ADD COLOR AND LIFE TO YOUR ATTRACTION BOARD

(Patent Pending)

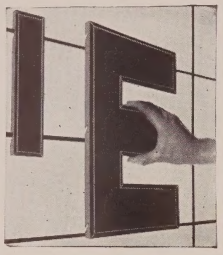
The Wagner Transparency Frame, which is made to hold 21" x 24" and 21" x 21" Marquee Services, Inc. transparencies, is slotted to mount on the Wagner Frame the same as Wagner Slotted Letters. Serviced at nominal cost by Marquee Services, Inc. This is the newest thing in show business—for the first time colored illuminated illustrations in the marquee are made possible and practical—through the use of Wagner Transparency Frames.

EXCLUSIVE SLOTTED SILHOUETTE LETTERS

WAGNER'S EXCLUSIVE RIGHT TO MANUFACTURE AFFIRMED BY THE HIGHEST COURTS

SAFE—EASY TO CHANGE—EASY TO STORE

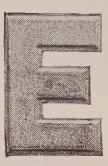
ANY and ALL Sizes of Wagner Letters Can Be Set in the Wagner Multiple Frame.



This illustration shows a 10" letter in place and a 16" letter being set in place. Note the uniform spacing between slots in these two sizes of letters.

All sizes of Wagner Letters are slotted with uniform spacing so that ANY and ALL sizes can be used in the Wagner Multiple Frame.

Wagner Letters Are Made in the Following Types and Sizes in a Wide Variety of Colors



Solid Color Cove

Made in 4", 8", 10", 12", 16", 24" and 30" sizes.

Colored or Aluminum Cove Edge

Made in 4", 8", 10", 12", 16", 24" and 30" sizes.

(Production of 4" and 10" aluminum letters temporarily curtailed due to National Defense needs. Plastic letters in these two sizes are available and are interchangeable with aluminum letters.)

Wagner patents have been upheld against infringement by decision of the U. S. District Court, Northern Dist. of Illinois, Eastern Division, and confirmed by the U. S. Circuit Court of Appeals, Seventh Circuit. The U. S. Supreme Court has made the decision of the Circuit Court of Appeals final by denying a petition for certiorari.

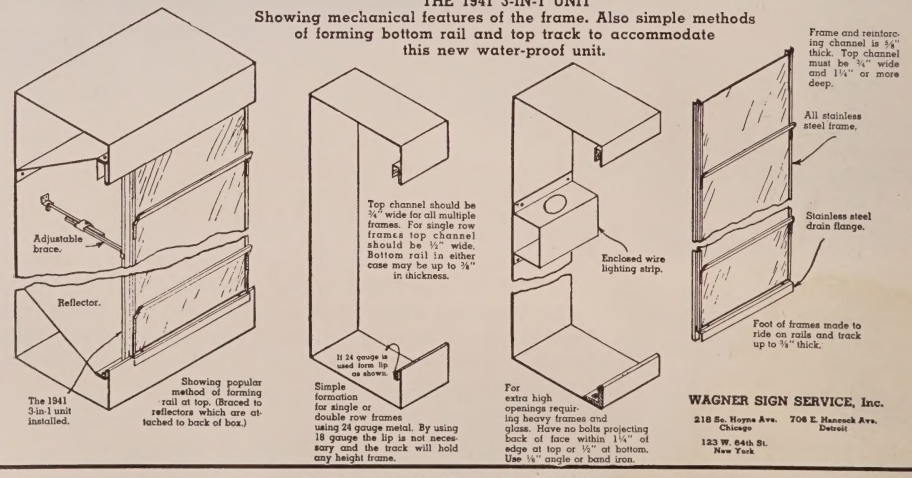
'41 Frame

DRAINS TO THE FACE OF THE SIGN, THEREBY ADDING 100% TO THE LIFE OF ATTRACTION BOARDS

All frames made of stainless steel. In the '41 type 3-in-1 Unit the Frame inserts in a ¾" channel at top and has a drain flange which sets over rail at bottom. This is the best and most practical unit wherever conditions permit its use.

THE 1941 3-IN-1 UNIT

Showing mechanical features of the frame. Also simple methods of forming bottom rail and top track to accommodate this new water-proof unit.



ALSO AVAILABLE IF DESIRED

'40 Frame

In the '40 type 3-in-1 Unit the Frame clips over rail at top and has a drain flange which sets over rail at bottom.

'39 Frame

In the '39 type 3-in-1 Unit the Frame inserts in a channel at top and bottom. It has no drain flange.

LIGHTING SPECIFICATIONS AND INFORMATION ABOUT THE PROPER HEIGHT OF OPENINGS FOR MASTER MULTIPLE CONSTRUCTION SENT UPON REQUEST

WAGNER SIGN SERVICE, INC.

218 S. Hoyne Avenue, CHICAGO 706 E. Hancock Avenue, DETROIT 123 W. 64th Street, NEW YORK

The following pages are devoted to a pictorial summary of theatre fronts designed and constructed during 1941. Many of the fronts shown are those designed for entirely new houses. Others were the important features in large remodelling projects. We present them with the thought that many ideas for the designing of new fronts might be obtained by those contemplating changes to present fronts or working on new theatre projects begun before the OPM restrictions.

CATALOGING THE NEW IN THEATRE FRONTS • 1941 •

A SUMMARY OF

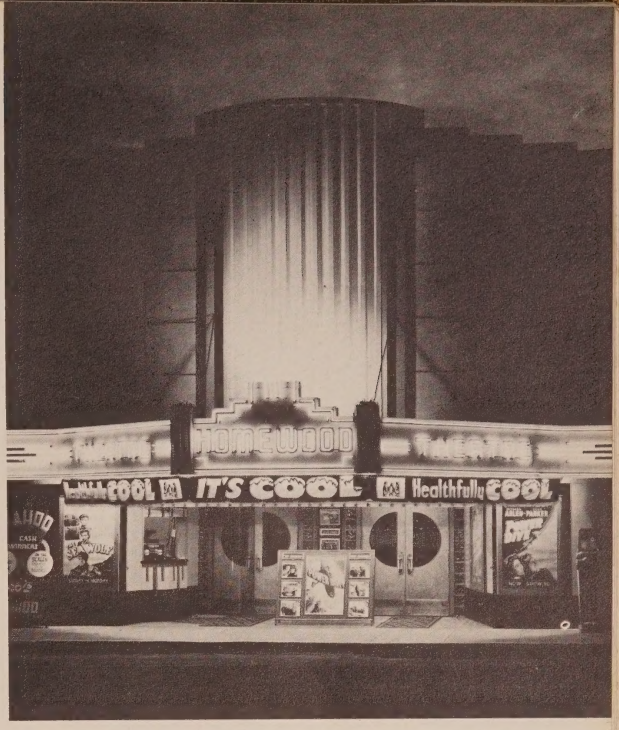
Modern Fronts

DESIGNED IN 1941

Below: **RIALTO THEATRE, DETROIT, MICHIGAN.** Renovations to the front of this house brought forth a new marquee on which are being used color transparencies of stars and plastic letters in opaque black and red in varied sizes which allow better composition.

Top: **WASHITA THEATRE, CHICKASHA, OKLAHOMA.** Situated in a small, agricultural town (population 15,000) this modern house, with a seating capacity of 900, has a stucco front of tan and white. The sign tower is ornamented with bands of red porcelain on which are mounted the sign letters. Window boxes of blue porcelain and red and blue porcelain plaques at the top of the facade have been added as decorative features. The blue porcelain marquee carries Wagner letters. House was designed by architect Jack Corgan.

Bottom: **SHARD THEATRE, LOCKLAND, OHIO.** A garage and store in a Cincinnati suburb were converted into this modern theatre. Seating 750 it was designed by architect Charles B. Levinson of Carthage, Ohio. Porcelain enamel, in a color combination of buff, ivory, and red, has been used to good advantage as the facing for the triangular marquee and facade. Marquee and signwork were erected by the Detroit Sign Company. Wagner letters are being used on the marquee.



Top: **HOMEWOOD THEATRE, BIRMINGHAM, ALABAMA.** The renovations to the old theatre which formerly graced this site brought forth this enlarged and modern edition. The front, faced with Vitrolite and stucco, is evidence of the fine job. No sign letters are used on the marquee. All billing is done in the display frames and on a small sign board under the marquee where special cut-out letters are used. House seats 750, and was designed by architect Wilmot C. Douglas of Birmingham.

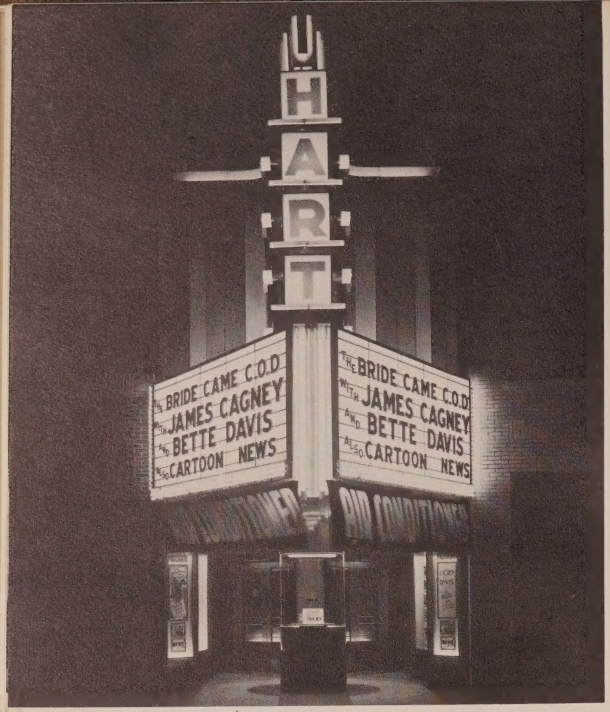
Bottom: **MAGIC THEATRE, BARBOURSVILLE, KENTUCKY.** Modern architectural design in a rural community would be a quick description of the front of this house, designed by B. F. Churchill & Son, architects of Bardstown, Kentucky, for Charles R. Mitchell. Structural glass, in red and agate, and glass block have been generously used for their decorative qualities. Sign letters on the marquee were manufactured by Wagner Sign Service, Inc.

Top: **WHITEHALL CENTER THEATRE, BRENTWOOD, PENNSYLVANIA.** The front of this theatre is the keystone of a large, business block. The towers on either side of the entrance serve as the entrance to the upper floor as well as decoration in the architectural design. Terra cotta has been used to face the theatre facade. Signwork was erected by Flexlume Sales Company, and uses Wagner letters. Project was designed by Victor A. Rigaumont, Pittsburgh architect.

Bottom: **WEST THEATRE, CHARLESTON, WEST VIRGINIA.** Terra cotta in shades of ivory and tan was used as the facing material on this smartly designed front. The adoption of a short name for the theatre made it possible to economize on the marquee and sign construction. A larger name might have required an upright sign or a marquee of greater proportions. The silhouette letters were manufactured by Wagner Sign Service, Inc.

Top: **THE VERN THEATRE, LOS ANGELES, CALIFORNIA.** There is much more to the design and construction of this front than just the usual marquee and boxoffice. Much emphasis was placed on the marquee design, as can be seen in the night view, but the day view illustrates the fine lines of the modern design of the front as a whole. S. Charles Lee is credited with the design. Sign letters are Wagner.

Bottom: **THE BOULEVARD THEATRE, COLUMBUS, OHIO.** The facade immediately over the marquee is of terra cotta tiles, and curves in from the building line. Tangerine face brick and terra cotta cover the balance of the front. The theatre name sign has been painted in shades of red, yellow, and blue, with the marquee in red and yellow with a white enamel soffit. Sign letters are by Wagner. House was constructed by F & Y Building Service.



Top Left: **HART THEATRE, BATON ROUGE, LOUISIANA.** The front of this house belies the size of the interior. It is seldom that a 1000 seater has so little front footage. The triangular marqee carries Adler silhouette letters. J. T. Knight, Jr., was the architect.

Top Right: **CENTRAL THEATRE, ELY, NEVADA.** Tan and green tile have been used as the covering of the lower facade. The balance of the exterior is cinder block and cut stone. Only one portion of the marquee is used for the Adler letters. Paul K. Evans was the architect.

Bottom Left: **PLAZA THEATRE, CHARLOTTE, NORTH CAROLINA.** The entire front is brick, and has been painted white. The Adler silhouette letters on the marquee stand out prominently against this background. House was designed by architect M. R. Marsh.

Bottom Right: **MANOS THEATRE, UNIONTOWN, PENNSYLVANIA.** Blue and white carrara structural glass covers the lower facade, and pink granite covers the upper. Gayly illuminated marquee has Adler silhouette letters. Victor A. Rigaumont, architect, designed the house.

Top Left: **STATE THEATRE, RICHMOND, VIRGINIA.** The granite front is surmounted by a marquee of good design, constructed by Artkraft Sign Company. The sign letters are Adler. E. C. Frederick was the architect.

Top Right: **APOLLO THEATRE, BUFFALO, NEW YORK,** Terra cotta in beige and blue with gold fired trimming was used as the facade covering. The showman-like marquee has Adler silhouette letters. Michael DeAngelis was the architect.

Bottom Left: **NOLA THEATRE, NEW ORLEANS, LOUISIANA.** Stucco, painted dark blue, has been used as the facade covering. The boxoffice has been faced with red and blue Vitrolite. Adler letters are being used on the marquee.

Bottom Right: **ARSENAL THEATRE, PITTSBURGH, PENNSYLVANIA.** The lower facade is suntan Carrara with a green stone base. Upper facade is face brick in light cream and dark tan. The marquee has Wagner letters. Victor A. Rigaumont was the architect.

Top Left: **MAIN THEATRE, ROYAL OAK, MICHIGAN.** Porcelain enamel in pastel shades of cream, tan, and green is the front covering. The name sign appears as blocks mounted on an upright support. Wagner letters are used on the triangular marquee.

Top Right: **HOLLYWOOD THEATRE, DETROIT, MICHIGAN.** A new marquee has done much to add life and attractiveness to this otherwise outmoded house. Adler silhouette letters in the Adler "Remova Panel" frame are used on its marquee.

Bottom Left: **AVALON THEATRE, DETROIT, MICHIGAN.** In renovating this front, structural glass, as a covering of the lower facade, was installed. Most important, however, was the installation of a new marquee on which Adler letters are being used.

Bottom Right: **TELENEWS THEATRE, CLEVELAND, OHIO.** As the theatre name and the front implies, this house features newsreels. The marquee, though small, carries an abundance of copy in Adler silhouette letters.

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4"-6"-8"-10"-12"-16"-24"

For Interchangeable Use of All Sizes from 8" to 24"

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Fluorescent Tubing being lifted out through "REMOVA-PANEL."

Ordinary lamps easily accessible through "REMOVA-PANEL."

Simply swing out or remove entirely the small, lightweight "REMOVA-PANEL", approximately 7"x24", instead of lifting out a large, heavy glass-in-frame unit. For Fluorescent Tubing, you can reach in and put a jumper across if a tube burns out and thus keep the sign operating. "REMOVA-PANEL" units alternate with stationary glass units in the opening, as furnished.

Royal Theatre, Detroit, Mich.—Two openings, each 31 feet long by 5 lines (71") high, with Adler "Third Dimension" Letters of various sizes used interchangeably. "Remova-Panel" used in this marquee for Fluorescent Tubing.

United States Patents		Canadian Patent
No. 2156257	No. 2155904	No. 369858
No. 2144954	No. 2113285	
No. 2163298	No. 1830414	England Patent
No. 2038978	No. 1989855	No. 442512

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"THIRD DIMENSION" OR LUG TYPE LETTERS IN 4"-6"-8"-10"-12"-16"-24" sizes, the "THIRD DIMENSION" LETTERS for interchangeable use of all sizes, from 8" to 24".

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MULTI-DECKER FRAMES FOR INTERCHANGEABLE USE OF 8"-10"-12"-16"-24" "THIRD DIMENSION" LETTERS.

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GLASS-IN-FRAME CONSTRUCTION—we furnish the glass and glaze frames before shipment.

FRAMES SET DIRECTLY IN GROOVES OF SIGN—no changes required—no clips to scratch the surface.

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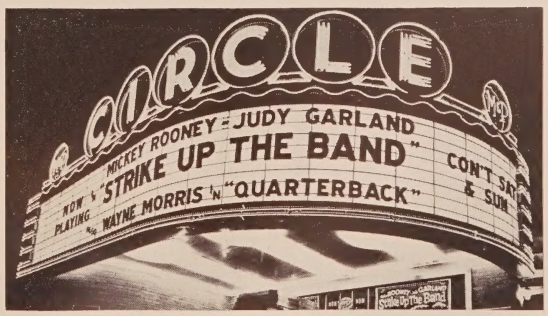

A Paramount curved marquee, with 10" & 16" ADLER "THIRD-DIMENSION" LETTERS used interchangeably, in *Locked-in-Line*, GLASS-IN-FRAME UNITS.

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ADLER SILHOUETTE LETTER CO.

Lobby Weather Control

WITH RUBBER MATS AND PROPER CARE

As both a traffic directing decorative effect and as a protective item of good housekeeping, rubber mats are a theatre necessity.

by Edward C. Lorraine

ASK ME the most aggravating problem that confronts the theatre owner, and I will point to the title of this article: Weather controlling your lobby with mats. In my 20 years experience as supervisor of the art and engineering departments of my company, this has always been all-important.

Take this example. A theatre is constructed, the vestibule and lobby are laid out in beautiful design, in tile, mosaic, or terrazzo, and a grand marble staircase leads from the inner lobby to the mezzanine. It is the opening day, and it begins to rain. The patrons come in, and soon the lobby is a flowing stream. It is impossible to mop the floor because of the crowds. When all but a few have entered, the floor is then mopped fairly dry. What has happened? The carpet at the foyer doors, for a depth of three to four feet, is a sopping mess, and a beautiful carpet has been ruined.

Some theatremen do not know how to deal with this problem. A rubber runner is advised, and when the next rainy day comes the runner is laid on the floor. The lobby floor has a slight incline, and as the people begin to walk on it, the runner begins to creep and buckle up. Time must be taken to adjust it, and there is always the possibility of someone stumbling and falling. The runner has only aggravated the condition, not eliminated it.

So the theatre man goes elsewhere for advice, unless he already knows the answer. Perhaps he goes to a mat house that manufactures only link mats, looks over samples, and gets some advice, given honestly. But perhaps the theatreman has failed to tell the mat man that his lobby has a pitch and quite a space on each side of the link mat he will use. He orders a mat that measures five feet wide and 30 feet long. It is put down on a rainy day, but eventually it begins to slide down the incline again. So the theatreman fastens it down at one end.

This particular mat is of the link type construction, made in several kinds of material, and strung on wire. With the strain of people passing over this mat, it becomes distorted, as the strain on the wires causes it to bend. People step off the mat onto the side, and as they walk back again, the mat, being above the floor without any side protection, causes trouble. The link mat is taken up, and the mat man condemned.

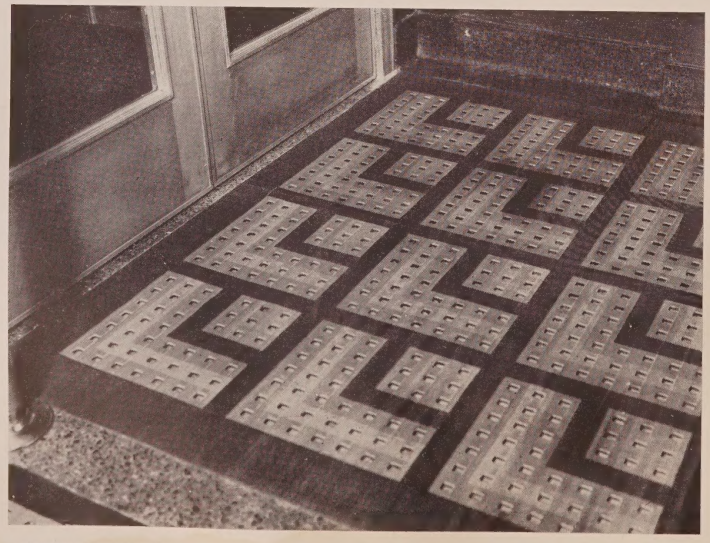
NOW TAKE THE CASE OF the marble staircase. To overcome wet slippery steps, a mat of cocoa fibre is placed at the base of the stairs. This takes all the moisture it can absorb, and then becomes a sodden mass of grime, grit, and mud. The grit is carried up the stairs, causing the marble edges of the steps to wear, and become uneven.

Again a mat man is consulted, and he advises smooth rubber mats. He has not been informed that the steps are an outer approach of the theatre. Neither has he been told that the steps are worn and uneven on the edges. He delivers the mats, and the local linoleum layer or linoleum mechanic attempts to cement them down, but the rubber will not conform to the worn edges. After weighting them down on numerous returns to the theatre, they hold for a while, and then break away from the edge.

But a different situation is found with the proper use of mats. This theatre has been constructed with a beautiful floor. The theatre operator does not want to rip this floor up to form sinkages for mats. Therefore the proper way to use a link type mat, if the whole lobby is not to be covered, would be to make this mat in approximately five sections, six feet in length, of the width required, separating each section with a metal strip the height of the mat, anchoring the top edge of each section to the brass, and then on the sides, framing the entire length of mat with a bevelled piece of metal from the height of the mat sloping down to the floor to nothing. We have now overcome the hazard, and also have kept water from seeping over the entire lobby.

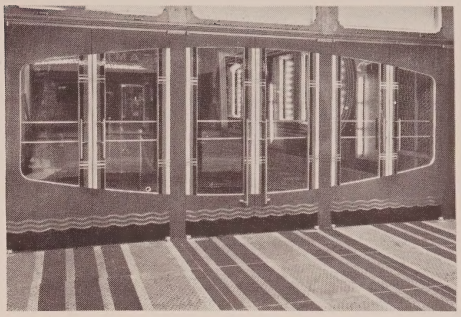
To make a more practical job would be to cover all doors for a depth of approximately six feet, and then put a runner in sections from these mats to the entrance of the ticket-taker's door. This will make it more practical, as the floor would not be slippery at the entrances, and most of the moisture would go through the links and stay there until the undersurface could be thoroughly dried. This is creating artificial sinkages.

THE PROPER METHOD would be to cover the entire floor with perforated rubber mats, not less than three-eighths of an inch in thickness, to be made in sections approximately four feet by four feet, separating each section with a metal strip, either of brass or white metal. This would prevent the mat sections from creeping or over-riding one another. Moisture and dirt then would be ab-



A CORRUGATED AND PERFORATED MAT counter sunk in a terrazzo floor, furnishes a slip-proof, pleasant appearing floor; but its greatest value is a protective one. Dust, dirt, wet, and other filth from the street is actually scraped from the feet of the incoming patrons, thereby safeguarding rough abrasive wear and heavy cleaning bills for the expensive interior carpeting.

FORMICA *in the Modern Theater!*

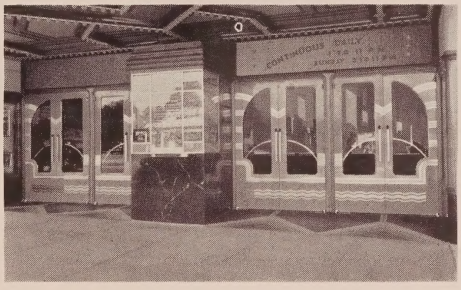


INTERIOR DOORS

The picture shows a battery of interior doors in striking colors in the Grand Theatre, Cincinnati, designed by John & Drew Eberson.

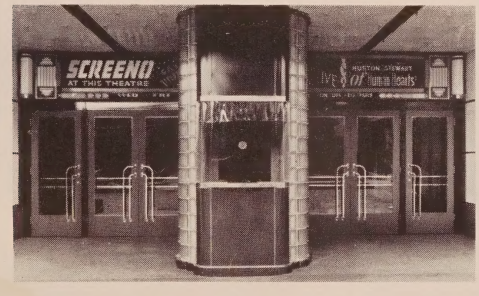
BOX OFFICE PANELING AND DEAL PLATES

The picture shows box office paneling and deal plates in front of the ticket seller used in the Avalon Theatre, Cleveland, by Paul Matsinger, architect.



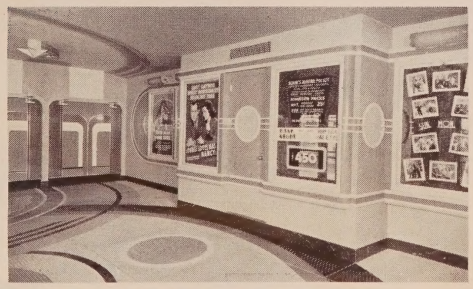
◀ EXTERIOR DOORS

Colorful inlaid Formica doors are suitable for use under canopies or where there is some protection from the weather.



STRIKING, theatrical designs in color are combined in Formica with great hardness and durability. The material is non-porous and does not absorb stains. It is easily cleaned by simple methods—washing with soap and water — and does not require laborious polishing.

Formica has been widely used by the leading theatrical architects for surfaces that are most prominent about the theatre; those that the public sees first, and on which its impression of the house depends. It is used for exterior and interior doors, box-office paneling, lobby wall paneling, inlaid panels behind the water fountains, areas in the wash rooms.



LOBBY WALL PANELING

Lobby wall paneling and poster frames in Formica may be provided in an unlimited number of color effects. The picture shows a lobby worked out by John and Drew Eberson.

◀ TOILET STALL DOORS

Formica toilet stall doors are light, strong, easy to keep clean and never require refinishing or maintenance.

THE FORMICA INSULATION CO., 4026 SPRING GROVE AVENUE, CINCINNATI, OHIO

Edward C. Lorraine is one of the best known rubber matting engineers serving the industry. A student of his craft and as supervising engineer for O. W. Jackson & Co. of New York, he has probably designed and installed more rubber matting in theatres during the past thirty-two years than any other one individual. The several installations in the Roxy Theatre, New York, are his outstanding achievements.

sorbed over the entire area, as the dirt and water would go through the perforations in the mats. At the close of the show, each section could be lifted out, and the artificial sinkages cleaned, replacing the mats. The perforations are the little men who do the work on this job. If the mats were solid, the muck and dirt would remain on top, and still be carried into the theatre proper. The only difference would be that there would be no hazard, and the rubber mats would prevent slipping. Therefore, perforated rubber mats covering the whole lobby, as shown in the accompanying illustrations, would be the proper method and proper installation to achieve correct and practical results.

As an illustration, had the theatre man known that he would have to make this installation over his floor, he could have saved himself thousands of dollars by putting in a plain concrete floor, and covering it with rubber mats in a beautiful design to match the coloring and architecture of his theatre.

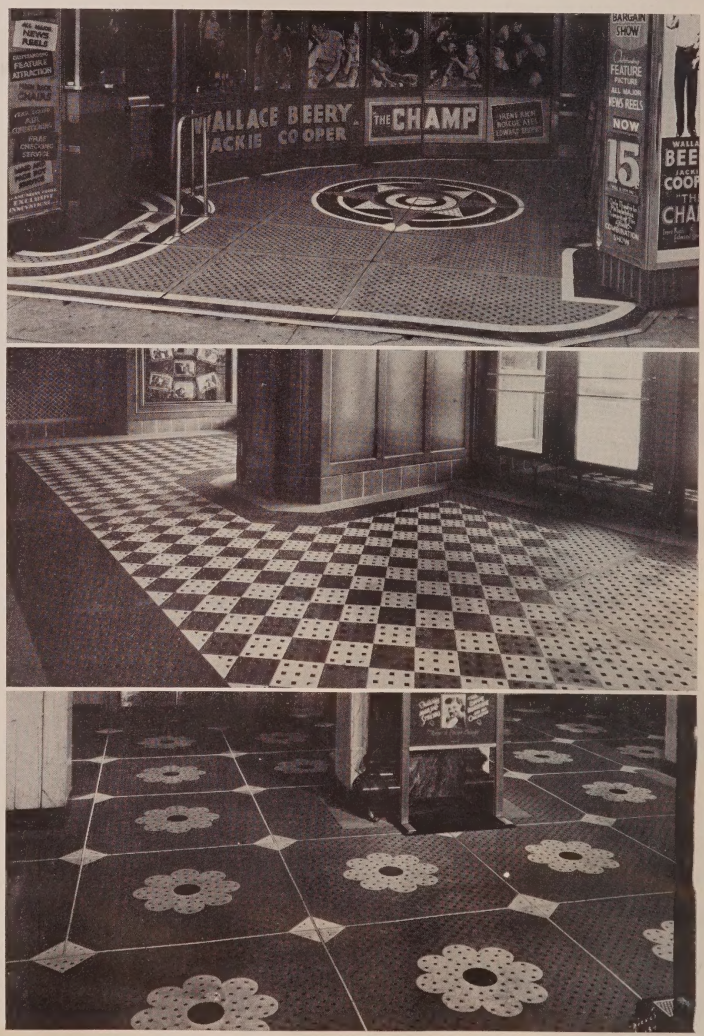
Then again, if the theatre owner were building another theatre, he would not have to cover his entire floor with rubber mats, but could make sinkages, merely use dividing strips of mosaic, terrazzo, or whatever material he desired, and divide his lobby up into small sections of mats.

NOW, AS WE HAVE COVERED the lobby let us take the problem of the stairs. Had the manager at once applied solid corrugated rubber mats before the theatre was opened, cementing them down from the back of the riser to the front edge of the step, leaving a margin of approximately four inches from the mat to the wall and from the mat to the balustrade, he would still have had the beautiful effect of his stairs, and the corrugated surface would allow whatever water or dirt was tracked onto the stairs to fall below the grooves. Should the weather be vicious and an over-abundance of snow or moisture carried onto these steps, it would flow off to the sides where the margin had been left, and the stairway would be absolutely safe for the traffic, retaining most of the dirt before it was carried up to the mezzanine floor.

Installing mats after the steps have been worn, the only proper way to fasten treads to these steps is as follows: Take a metal safety edge, fasten it to the edge of the marble step, and then cement the rubber to the back of the metal safety edge. This will straighten out the worn parts of the steps, and give the same safety feature for which the rubber treads were intended. There are several types of these safety edges manufactured by different concerns.

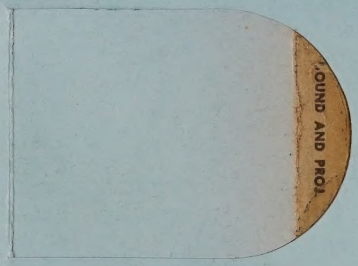
These different statements are from practical experience, and are not merely guess work. Rubber mats outwear any material placed on floors or stairs, and there have been installations of rubber mats made in theatres in existence for 15 years.

★



TOP: An interesting illustration of specially designed rubber mats used as a means to direct the traffic flow. Note the incoming arrow past the ticket booth. CENTER: An overall pattern with a plain border furnishes an attractive lobby that can be kept clean and tidy at all times. BOTTOM: Decorative designs can be held in place by metal strips so that they never creep and always present a flat, obstruction-free floor.

Sound and Projection



THUMB-DEX
Patent No. 1579575

What Type and Size Arc SHOULD I INSTALL IN MY THEATRE?

Two authorities collaborate in charting the requirements which should govern every owner's choice of projection light.

by E. R. Geib and W. C. Kalb

THE QUESTION is frequently asked by theatre owners: "What type and size of arc should I install in my theatre?" This is a very important question. Motion picture theatres of today, even with their fine appointments, attractive lobbies, their rich interior decorating, comfortable seats, heavily carpeted floors, air-conditioning, and other luxurious features, are still dependent for patronage on the quality of entertainment presented on the screen. The quality of entertainment, in turn, depends on how strong an impression of reality is created by the rapidly changing pattern of light, shades, and colors which make up the screen image.

Brightness of screen image is an important factor in creating a feeling of realism in the mind of the observer. Abundant screen illumination gives sharp definition to details of the picture which are lost when the screen light is dim. The Projection Practice Committee of the S.M.P.E. recommends that the screen brightness should be not less than nine foot lamberts at the center of the screen, without film but with shutter running. With a reflection factor of 75 per cent, the intensity of light projected onto the screen should therefore be 12 foot candles or more. The quantity of light that is, the number of *lumens* which any projection lamp is capable of projecting onto the screen, can be learned from the manufacturer. Dividing this value by the area of the screen image in square feet gives the average foot candles of screen illumination. Light intensity at the center of the screen, under conditions of optimum adjustment, is usually about 15 per cent higher than the average.

Length of throw, in relation to size of screen image desired, determines the choice of projection lens but does not enter into the foregoing calculation. For a given projection lens, length of throw affects the size of the screen image but the quantity of light in the projected beam is the same at any distance, if perfectly clear atmosphere is assumed. Longer throw decreases screen brightness only because the screen image is larger. If the lens is changed to keep the size of image the same at the longer throw, screen brightness is not reduced. This principle is illustrated in Fig. 1.

A SECOND FACTOR influencing the impression of realism created by the picture is the color quality of the light. Since our vision is normally adjusted to daylight, a motion picture is most realistic when projected by light of daylight quality. This reaction is noticeable with pictures presented in monochrome, and resulted in a preference on the part of theatre goers for snow white projection light before color features were known. The advent of colored motion pictures, however, greatly increased the importance of color quality in projection light.

Daylight consists of an essentially even balance of all spectral colors. Therefore, to obtain the greatest realism, color pictures not photographed in daylight are made under carbon arc lighting of daylight quality. Quite naturally the best effect will be obtained when they are projected with light of the same quality. The popularity of color features today makes color quality of light practically equal in importance to quantity of light when considering the type of projection lamp to be installed.

THERE ARE TWO GENERAL TYPES of projection lamps from which to choose, the low intensity arcs and the high intensity arcs. Both of these types may be subdivided into direct current arcs and alternating current arcs. The commonly accepted definition of a low intensity arc is one in which the principal light source is incandescent solid carbon at or near its temperature of volatilization. In the case of the direct current low intensity arc, as used for projection, this is the crater face of the positive carbon. The maximum brilliancy of this crater face is limited by the vaporizing temperature of carbon to a value of about 175 candles per square millimeter. This crater brilliancy varies but little with changes in current within the usual operating range, but the crater area increases considerably with increasing current. Current density in the positive carbon for the familiar commercial lamps ranges from approximately 50 to 200 amperes per square inch.

The high intensity carbon arc, as used for projection, is one in which, in addition to the light from the incandescent crater surface, there is a significant amount of light originating in the gaseous region immediately in front of the carbon in an atmosphere containing flame materials (materials which become highly luminescent when volatilized in the arc stream). In the case of the direct current high intensity arc this light comes from within and near the crater of the positive carbon. The maximum brilliancy of the crater obtained in various types of direct current high intensity

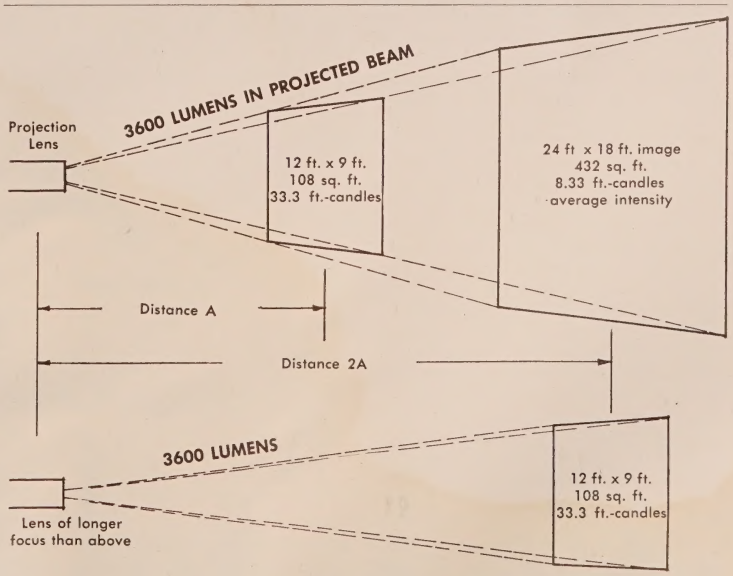


FIG. 1.

carbon arcs used in common commercial lamps ranges from 350 to 1200 candles per square millimeter with current densities in the positive carbon ranging from about 400 to well over 1000 amperes per square inch. Increase of current increases the crater area only slightly, but produces marked increase in brilliancy.

LOW INTENSITY ARCS

The earliest carbon arcs used for motion picture projection were of the low intensity type. The carbons employed were either solid or cored. The core or soft center of the latter contained no special light producing materials. These arcs were operated on either direct current or alternating current as the case required. In the direct current arc the usable light comes entirely from the crater of the positive carbon. The positive is mounted above the negative, and the trim slightly inclined from the vertical so as to partially expose the positive crater to the condenser lens which, it will be observed from Fig. 2, picks up the light from the crater of the positive carbon, and focuses it upon the film aperture. The position of the negative carbon should be adjusted to burn off the positive at an appreciable angle with the axis of the carbon, thus permitting the greater part of the light to be picked up by the lens. Some of these lamps are still in use.

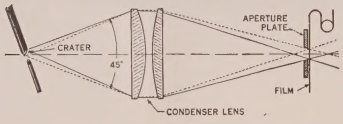


FIG. 2.

Where direct current was not available and conversion of the A. C. power supply to D.C. not feasible, alternating current arcs were used. The characteristic A.C. hum of the arc was eliminated by the introduction of flaming material in the cores of the carbons. In addition to quieting the arc, these special ingredients result in a much whiter light than that obtained from the neutral cored low intensity arc.

These early low intensity lamps employed a condenser lens to focus the light from the arc at the film aperture. This type of optical system was wasteful of light since the angle of pickup was only about 45 degrees. A very substantial increase in efficiency over this condenser type low intensity projection lamp was achieved with the development of the reflecting arc projection lamp, the principle of which is illustrated in Fig. 3.

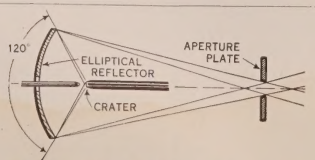


FIG. 3. Optical principle of reflecting type projection lamp.

CONSIDERABLY smaller diameter carbons are employed in these lamps, and the carbons are mounted co-axially in a horizontal position with the crater of the positive carbon facing a concave mirror of elliptical contour. This mirror collects and focuses at the film aperture a much larger proportion of the total crater light than the condenser lens used in the earlier types of projection lamps. The carbon trims in most general use are shown in Table I.

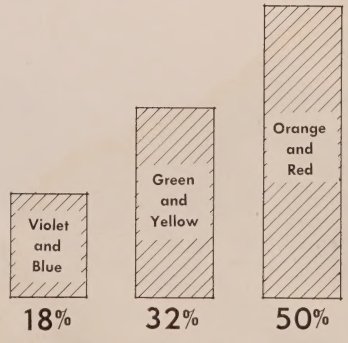
Table I

Carbon Trims for Reflecting Type, D.C., Low Incensity Lamps

Arc Cur. Amps.	Approx. Arc Volts	Carbon Size and Trim
16-20	54-57	10 mm x 8" Reg. Cored Pos. 7 mm x 8" Reg. Solid Neg.
21-25	54-57	12 mm x 8" Reg. Cored Pos. 8 mm x 8" Reg. Sol. or Cor. Neg.
26-30	54-57	13 mm x 8" Reg. Cored Pos. 9 mm x 8" Reg. Cored Neg.
28-32	54-57	12 mm x 8" SRA Cored Positive 8 mm x 8" SRA Cored Negative
32-42	54-57	13 mm x 8" SRA Cored Positive 8 mm x 8" SRA Cored Negative

Because of its efficiency over the condenser type lamp, the reflecting arc rapidly replaced the older type, and it was not long before the majority of the theatres in the country were using this type lamp. In fact, many thousands of theatres still use them. Efficient as they are, though, in relation to earlier types, the low intensity reflecting arc type has two serious shortcomings from the standpoint of present day projection requirements. These are the quality of light and the total volume of screen light available.

The low intensity arc, when operated at its maximum brilliancy, gives the whitest light obtainable from a purely incandescent source. Color analysis of this light, however, or comparison with a pure white light, shows the presence of a definitely yellowish tint. From Fig. 4 it will be observed that 18 per cent of the light emitted by the low intensity arc is in the violet and blue portion of the spectrum, 32 per cent in the green and yellow, and 50 per cent in the orange and red. It is for this reason that color pictures projected with it are not viewed in their natural colors. Reds are over-emphasized, and blues are given a greenish cast which destroys the realistic effect of color reproduction. Maximum realism in projection is obtained with a light which has a balanced spectrum, that is, one in which the various colors or wavelengths of light are more evenly matched. More will be said on this subject a littler later on.



Yellow, Orange and Red predominates, giving yellowish tint on the screen.

FIG. 4

In the definition of the low intensity arc it was stated that the maximum brilliancy of the crater face is limited by the vaporizing temperature of carbon to a value of about 175 cp/mm^2. This limitation of crater brilliancy constitutes a limiting factor in the application of the low intensity arc, and prevents its use in any but the smaller theatres. Even in some of these its light is not adequate for modern standards of screen illumination. The maximum screen light available from the low intensity projection lamp is about 1200 lumens with shutter running.

HIGH INTENSITY ARCS

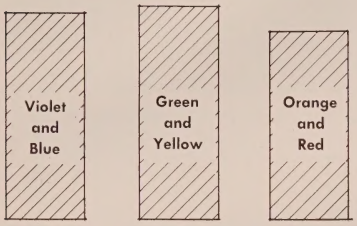
Fortunately, there is another type of arc capable of being operated at a much higher intrinsic brilliancy than the low intensity arc, and possessing the further advantage of producing a light of snow white color. This is the high intensity carbon arc. By using certain rare-earth materials in the core of the positive carbon or, in the case of the A.C. high intensity arc, in the cores of both carbons, and by maintaining the relative position of the two carbons within sharply defined limits, the crater face assumes a cup-like form within which the vapors of carbon and core material appear to be restrained and raised to a temperature much higher than the boiling point of carbon. The result is a light of great brilliancy. Brilliancies from 350 to as high as 1200 cp/mm^2 are obtained.

The color quality of the light produced by the high intensity arc is ideal for motion picture projection, especially for the projection of color features. Fig. 5 shows that the color composition of the light from the high intensity arc is very evenly balanced. Thirty-four per cent of the light is in the violet and blue, 35 per cent in the green and yellow, and 31 per cent in the orange and red. Since color productions are photographed in the studio under carbon arc lighting of similar quality, and since daylight is also characterized by this even balance of all colors, the high intensity carbon arc gives the most natural reproduction of color on the screen. Outdoor as well as indoor scenes have a naturalness that is readily apparent,

even to the untrained eye, when compared with projection by light of unbalanced color quality.

All of the foregoing is so obvious that one wonders why the low intensity arc, outmoded as it is, is still being used in theatres which in all other respects have modernized to the most min-

HIGH INTENSITY LIGHT



An even balance of all colors assures a snow white light of daylight quality.

FIG. 5

ute detail. This is especially surprising when it is observed that the cost of the high intensity arcs not only compares favorably with the old-fashioned low intensity arcs but, in some instances, cost of operation is actually less when both current and carbon costs are taken into consideration.

THERE ARE SEVERAL TYPES of high intensity arcs from which to choose, covering a wide range of sizes and light output capacities. For the largest theatres, there is the high amperage condenser type lamp, producing an arc like that illustrated in Fig. 6, in which the positive carbon is mounted in a horizontal position with its crater facing the condenser lens and is rotated during operation to preserve a symmetrical crater form. The negative is inclined to the positive.

FIG. 6.

This type of arc is generally operated at from 120 to 130 amperes with 66 to 70 volts at the arc. For such conditions, a trim consisting of a "Orotip" cored negative is recommended. 13.6mm x 22″ positive and a 7/16 x 9 With modern lenses these lamps will project about 4000 lumens on the screen with shutter running. During the last year, National Carbon Company has announced a new 13.6 mm high intensity carbon which has a current carrying capacity of from 125 to 150 amperes, and is operated at from 68 to 78 volts at the arc.

Briefly, these new carbons, when burned at 125 amperes, give the same amount of light but 30 per cent longer life than the present carbons at 125 amperes. At 140 amperes, the burning rate is the same as with the present carbons at 125 amperes but 30 per cent more light is obtained. At 150 amperes, 50 per cent more light is obtainable than at 125 amperes and, of course, the burning rate is faster. Thus the new carbons are a decided improvement over the present stock. Because of very limited production, however, they are not available generally, but production is being increased and distribution is being extended as rapidly as possible. The regular 7/16 x 9 "Orotip" cored negative carbon is recommended for use with the new carbon for 125 to 130 amperes, but when burned at 130 to 150 amperes a 1/2″ x 9″ "Orotip" cored negative is used.

FOR THOSE CASES where more light is required than is obtainable from the standard regular trim, designed for 120 to 130 amperes, there is at present generally available the standard super trim, designed for 170 to 180 amperes and 72 to 75 volts at the arc. This trim consists of a 13.6mm x 22″ standard super high intensity positive and a 1/2″x9″ heavy duty "Orotip" cored negative carbon.

A new super high intensity projector carbon has also been announced during the past year. This carbon, which is also 13.6mm in diameter and 22″ long, is designed for 170 amperes and 75 volts at the arc. A 1/2″ x 9″ heavy duty "Orotip" cored negative carbon is paired with it. While this carbon also is not yet in general distribution, due to limited production, it will be available soon. It gives about 40 per cent more light than the present super high intensity trim and does it at a slightly lower current with about the same rate of consumption. The curve of intrinsic brilliancy distribution across the crater face shows that this new carbon provides a slightly larger light source than the original super high intensity positive and a higher intrinsic brilliancy, with a flatter distribution near the center of the crater. Furthermore, the new carbon allows more latitude in position of the electrodes without introducing unsteadiness in screen light.

With these new arcs it is possible for the largest theatres in the country to obtain a quantity of light which will suit the needs of the most exacting while retaining the snow white quality to which patrons of the best theatres have become accustomed.

For the medium sized and smaller theatres the same color quality of light is obtainable from lower amperage high intensity arcs, known as the Suprex types and 1 KW types. Fig. 7 shows the position in which the carbons are burned, and Table II lists the amperages and voltages recommended for the Suprex type lamps. These lamps project 3600 lumens on the screen when operated at 65 amperes arc current, under correct arc conditions, with shutter running.

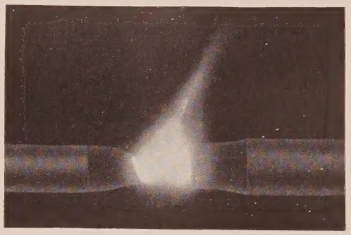


FIG. 7.

Table II

Carbon Trims for Suprex Type High Intensity Carbon Arc Lamps

Arc Cur. Amps.	Approx. Arc Volts	Carbon Size and Trim
42-50	31-40	7 mm x 12″ or 14″ "Suprex" Cored Positive 6 mm x 9″ "Suprex" Cored Neg.
56-65	31-40	8 mm x 12″ or 14″ "Suprex" Cored Positive 6.5 or 7 mm x 9″ "Suprex" Cored Negative

Table III shows the trims recommended for the A.C. and D.C. 1 KW arcs, which are capable of projecting 2000 to 2150 lumens onto the screen with shutter running.

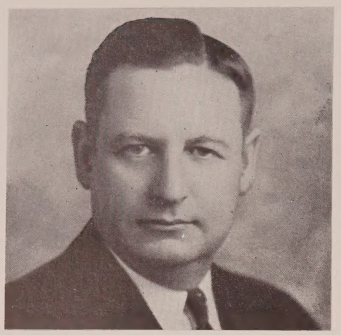
Table III

Carbon Trims for 1 KW High Intensity Carbon Arc Lamps

Arc Cur. Amps.	Approx. Arc Volts	Carbon Size and Trim
AC. 58-65	21-22	7 mm x 12″ or 14″ "Suprex" Cored Positive in both holders
DC. 40	27.5	7 mm x 12″ or 14″ "Suprex" Cored Positive 6 mm x 9″ "Orotip" Cored Negative

It will be seen from these tables that a rather wide range of arc currents and voltages is provided, permitting choice of the operating conditions and volume of screen light best suited to the size of the theatre.

THESE HORIZONTAL TRIM, high intensity arcs were made possible through the development of small diameter copper coated high intensity carbons, known as "Suprex" carbons. The lamps in which these carbons are used are of the reflecting arc type, and, since the small diameter copper coated carbons do not require ro-



E. R. Geib, Manager, Arc Department, Carbon Sales Division, National Carbon Company, Inc., Cleveland, O., has been engaged in the carbon business since 1907. He has been a Fellow of the Society of Motion Picture Engineers since Feb. 1, 1934, and for six years prior to that time had been an active member. For six years he served as chairman of its membership committee, and is at present a member of the Projection Practice Committee and a member of the Screen Brightness Committee. He has written a number of articles on projector carbons and projection lighting.

tation, these lamps are very simple in design, and hence are comparatively low in initial cost. This fact, combined with their high efficiency and low operating cost, has made them the most popular type lamps on the market today. Thousands of theatres have already installed them, and their use will be broadened still more as others become acquainted with their superior qualities. In fact, with such an outstanding product available, a theatre owner really cannot afford to continue using old style low intensity lamps.

The subject of how much light there should be on the picture screen has been given considerable thought and attention by various committees of the Society of Motion Picture Engineers. After much investigation and research, the Society has adopted a standard of 10 — 1 + 4 foot lamberts, as the recommended brightness at the center of the screen. Expressing it another way, and allowing 75 per cent screen reflectivity, the light source should project onto the screen a minimum light intensity of 12 foot candles, and from that on up to 19 foot candles, according to the desire of the theatre owner. The more powerful the light source, the greater is the definition of the screen image, and the higher the permissible level of general illumination.

To INTERPRET the foregoing figures in terms of the type of projection lamp to be selected let us take, for example, a theatre with an 18 foot screen. To project a light of 12 foot candles intensity at the center of the screen will require about 2150 lumens. No low intensity lamp will supply this much screen light but it can be supplied by an arc of the 1 KW type. This could be either a 65 ampere, 22 volt A.C. high intensity lamp of the high frequency type or a 40 ampere, 27-1/2 volt D.C. type. The actual operating cost per hour of such an arc, including both carbons and current, would not be much if any higher than the cost of operating a low intensity reflecting arc which would give only about half as much light, and that of yellowish color. If it is desired to improve still further the light on the screen, obtaining, say, 14 foot candles on an 18 foot screen, this can be accomplished very easily with a 50 ampere Suprex type arc. The upper limit of recommended screen brightness, with 19 foot candles on an 18 foot screen, can be obtained with a Suprex type arc operated at about 64 amperes.

If, for example, the screen were 20 feet wide, a 50 ampere Suprex arc would produce about 11-1/2 foot candles and a 65 ampere Suprex type arc about 16 foot candles. The Suprex type arc lamps and the lower wattage 1 KW arcs now available give a range of light producing capacity adapted to all small and medium size theatres. As a guide to selection, the following table of screen light intensities obtained on images of different widths should prove helpful.

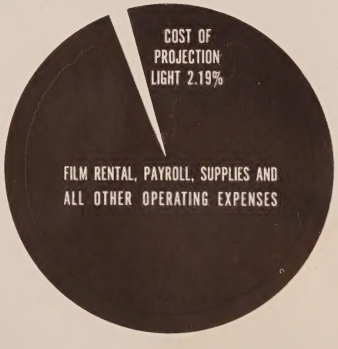


FIG. 8.

TABLE IV

Type of Lamp	Carbon Trim	Arc Cur. Amps.	Foot Candles at Center of Screen Image of width indicated by column headings 14′	16′	18′	20′	22′	24′	Color of Light
D.C. Low Intensity Reflecting	12 mm regular positive 8 mm regular negative	25	8.5	6.5	5.2	4.1	3.4	2.9	Yellowish
D.C. Low Intensity Reflecting	12 mm SRA positive 8 mm SRA negative	32	9.4	7.2	5.7	4.6	3.8	3.2	Yellowish
D.C. "One Kilowatt", High Intensity Arc	7 mm positive 6 mm negative	40	19.8	15.1	12.0	9.7	8.0	6.7	Snow white
A.C. "One Kilowatt", High Intensity Arc	7 mm carbon in both holders	65	19.8	15.1	12.0	9.7	8.0	6.7	Snow white
D.C. Suprex Type, High Intensity Arc	7 mm positive 6 mm negative	50	23.5	18.0	14.2	11.5	9.5	8.0	Snow white
D.C. Suprex Type, High Intensity Arc	8 mm positive 6.5 mm negative	60	29.0	22.0	17.5	14.1	11.7	9.8	Snow white
D.C. Suprex Type, High Intensity Arc	8 mm positive 7 mm negative	65	32.4	24.8	19.6	16.0	13.2	11.0	Snow white

Despite the importance of projection light as the principal agency for presenting to the patrons of motion picture theatres the entertainment for which they pay, there is all too often an inclination to economize on projection lighting to such an extent that the quality of projection is seriously impaired. When it is realized what a small proportion of total operating costs is represented by the cost of projection light, the inconsistency of such a course is at once apparent. Out of each dollar spent for theatre operation only a little more than two cents goes for the electric power and carbons needed to supply projection light. This is graphically illustrated by Fig. 8.

SURELY, in view of its importance and its surprisingly low cost in relation to the other theatre expenses, installation of the best projection light obtainable should be one of the first objectives of the theatre owner. It is hoped, through the medium of the data here presented, to provide a basis from which selection of projection lamp equipment can be made in accordance with the needs of each theatre.

W. C. Kalb was graduated from Ohio State University with the degree of M.E. in E.E., and has spent 32 years since then in the carbon business. He worked for a time with the Corliss Carbon Company, Bradford, Pa., and the remainder with the National Carbon Company, Inc., where he is now Commercial Engineer. His experience with carbon products has included research, development, production, sales, and administrative work. He is a Fellow of the American Institute of Electrical Engineers, secretary and past chairman of the AIEE Committee on Electrochemistry and Electrometallurgy, member of the AIEE Committee on Production and Application of Light, and past-chairman of the AIEE's Cleveland section. He has also published numerous articles in technical periodicals dealing with various phases of carbon arc lighting, carbon brushes, and commutation.

RCA THEATRE EQUIPMENT

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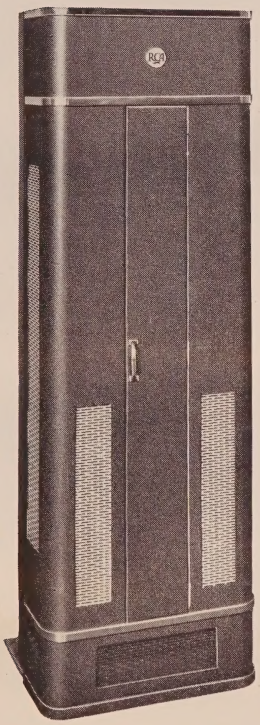

Over 8000 progressive theatre owners in all parts of the world have turned to RCA Photophone for their theatre equipment! For RCA's continual forward-looking research and vast engineering facilities have resulted in an outstanding line of equipment, with an unusual record of performance! Be sure you see RCA before you buy any theatre sound equipment.

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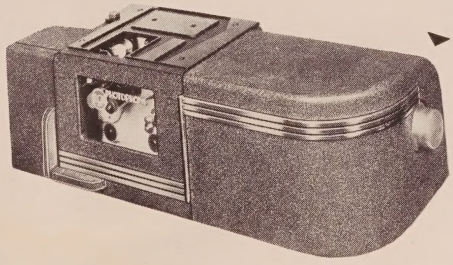
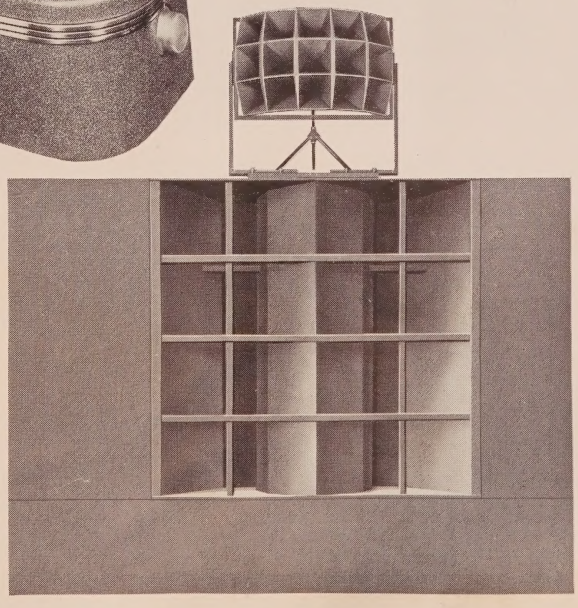
RCA's vast experience in the building of top quality amplifiers and power supplies for recording studios and broadcast stations gives it a tremendous advantage in designing theatre amplifiers. Here, for instance, is the famous PG-140A rack with slip on cover in place. This reliable, carefully engineered amplifier is guaranteed to deliver not less than 25 watts undistorted output over a frequency range of 50 to 5,000 cycles under Academy method of rating. Other amplifiers for every size theatre.

RCA DE LUXE ROTARY STABILIZER SOUNDHEAD

Here is the outstanding soundhead in the industry —extra safe, extra efficient, easiest to install, easiest to operate, and easiest to keep clean and bright. RCA's famous Rotary Stabilizer with hermetically sealed case passes film smoothly and steadily past the light beam. Easy to thread. No stationary surfaces to scratch film. In addition, the exclusive RCA "Shock Proof" drive system isolates jerky loads of the intermittent movement and film take up. The result—smoother film motion, less "flutter" distortion. A complete line of RCA Soundheads available.





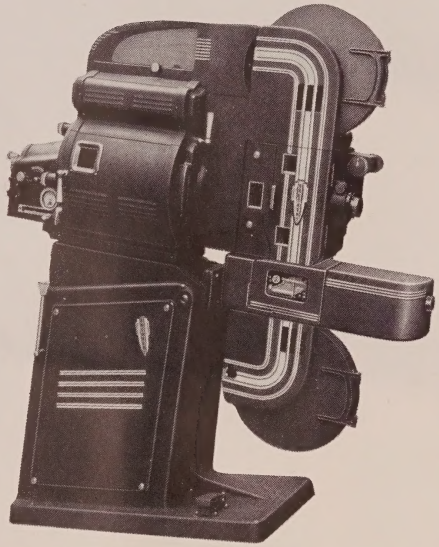
RCA DE LUXE TWO-WAY LOUDSPEAKER SYSTEMS

Here's a loudspeaker system any theatre owner would be proud to have. Two large directional baffles equipped with four efficient heavy-duty (30 watt) mechanisms and a three-sided extension baffle make up the massive low-frequency loud speaker assembly supplied with these systems. Thick, laminated panels, sturdy bracing, and the use of an asymmetrically proportioned baffle extension aid this low-frequency loudspeaker assembly to reproduce the smooth, solid bass tones that delight theatre patrons. A genuine cellular horn, highly efficient coupling transformers, "regular-emergency" switch on cross-over panel, add to its performance. A complete line of RCA loudspeaker systems is available.

FOR FURTHER INFORMATION WRITE RCA THEATRE EQUIPMENT DIVISION, RCA MANUFACTURING CO., INC., CAMDEN, NEW JERSEY, OR SEE YOUR RCA THEATRE SUPPLY DEALER

RCA THEATRE EQUIPMENT

BRENKERT PROJECTORS — Unmatched Efficiency — Greater Reliability — Lower Operation Costs!



Brenkert "80" Projector with Brenkert Heavy Duty Base, Brenkert Enarc Projection Lamp with Controlled Ventilation, Brenkert Steel Magazines with Streamlined Covers, and RCA De Luxe Soundhead.

BRENKERT HEAVY DUTY BASE . . . Appearance and rigidity in keeping with de luxe projection standards. Complete with arc lamp switch, but not including soundhead mounting bracket. Order as Brenkert Catalogue Number BX-10-A base with 100 ampere switch and as BX-10-B base with 200 ampere switch.

BRENKERT MEDIUM DUTY BASE (Not Illustrated). A moderately priced base of modern design and features, complete with 100 ampere arc lamp switch but not including soundhead mounting bracket. Order as Brenkert Catalogue Number BX-12-A.

BRENKERT PICTURE CHANGEOVER SYSTEM . . . Attached to any Brenkert mechanism without machining. Efficient and noiseless in operation. Order as Catalogue Number BX-30 mechanism and BX-20 footswitch.

BRENKERT MAGAZINES . . . 18-inch steel magazines of sturdy design. Order as Catalogue Number BX-21 upper magazine, complete with spindle, and as BX-22 lower magazine complete with takeup pulley, spindle and clutch.

BRENKERT STREAMLINE COVER PLATES . . . Complete the streamlined appearance of projection unit. Order as Catalogue Number BX-26 for upper magazine and as BX-27 for lower magazine. See next page regarding controlled ventilation housing illustrated above.

Exclusive forward-looking design features, rugged construction, highest quality parts, and precision manufacturing make Brenkert the standout projection equipment.

BRENKERT "80" PROJECTOR

A superb projection mechanism in every respect. Costs less in the long run because its long-life construction makes for exceptionally low repair costs. Here are a few of its outstanding technical features:

1. **Double Rear Shutters**
   - Up to 20% higher picture brilliancy
   - Clearer, more uniform picture definition
   - Minimum flicker
   - Minimum aperture heat—maximum safety
2. **Rugged Enclosed Drive System Running in Bath of Filtered Oil**
   - Added reliability—no bindups
   - Long life all running parts
   - Quieter operation
3. **Special Aperture Cooling Fan**
   - Keeps aperture temperature at lower safer level
   - Cannot cause draft through arc lamp, therefore eliminates all need for glass draft shields
4. **Heavy Duty Precision Intermittent**
   - Long life with continual rock-steady projection
5. **Sturdy Film Trap Construction with Precision Film Stabilizing Features**
   - Makes for maximum picture steadiness for all film conditions
   - Quickly removable construction makes it easy to inspect and clean

For full technical details ask for illustrated bulletin.

Order as Brenkert Catalogue Number BX-80 Projection Mechanism with Dual Rear Shutters and as BX-40 with Single Rear Shutter.

MANUFACTURED BY BRENKERT LIGHT PROJECTION COMPANY
Detroit, Michigan
SOLD THROUGH RCA THEATRE SUPPLY DEALERS

RCA THEATRE EQUIPMENT

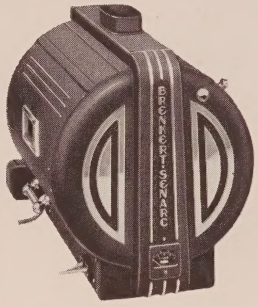
BRENKERT PROJECTION ARC LAMPS — Great Brilliance and Performance at Low Cost!

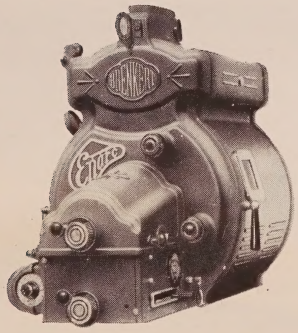
Twenty-nine years of leadership in the design of theatre and film studio light projection equipment are reflected in this highest quality line of theatre projection arc lamps. In every way—efficiency, reliability, stability, and ease of operation—each tops the field in its class.

BRENKERT SENARC AUTOMATIC HIGH INTENSITY ARC LAMP

A highly efficient reflector type arc lamp designed especially to provide moderate sized and smaller theatres with snow-white high intensity light at lowest power and carbon costs. Its efficient optical design and separately adjustable dual automatic carbon feed system put its efficiency and all-around performance on a par with big theatre lamps. Provides more than twice the light of low intensity lamps at negligible increased costs for power and carbons. Enables smaller theatres to match projection quality and viewing comfort of the largest. A vital necessity for today's dense black and white films and color films.

Order as Catalogue S-100 Brenkert Senarc lamp complete with ammeter. Employs 6 mm. Orotip "C" negative and 7mm. Suprex positive carbon.





BRENKERT ENARC AUTOMATIC HIGH INTENSITY PROJECTION ARC LAMP

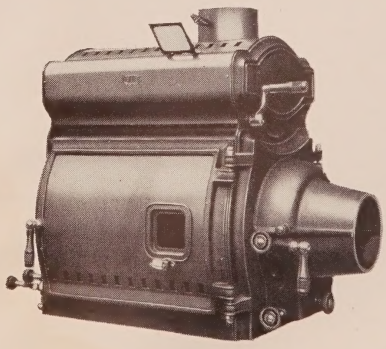
A highly efficient reflector type lamp that provides snow-white light rivaling in brilliancy and quality that from the Brenkert Super High Intensity Lamp. Ideal for large and medium sized theatres. Separately adjustable dual automatic carbon feed system enables precise adjustment to power supply conditions and theatre requirements.

Order as Catalogue Number N-100 Brenkert Enarc Lamp complete with mirror, ammeter and automatic dual feed (specify carbon combination). Order as N-102 complete as listed above plus Brenkert patented ventilation attachment (cannot be used with projectors having gate opening in rear.)

BRENKERT SUPER HIGH INTENSITY PROJECTION LAMP

Used and endorsed by the largest and finest theatres throughout the world. An overwhelming favorite for critical process projection in Hollywood film studios. Provides superlative brilliancy and image quality.

Order as Catalogue A-800 for 13.6 mm. H. I. and Super H. I. positive carbons, with front and rear solid condensers. Order as Catalogue A-802 for 16 mm. high intensity carbons with front and rear solid condensers. Catalogue Number P-429 front condensing lens, split type, available for either type at slight extra cost.



BRENKERT ECONARC LOW INTENSITY PROJECTION ARC LAMP

(Not Illustrated)

An efficient lamp of the low intensity type popular for many years in small theatres.

Order as Catalogue Number E-300 Brenkert Econarc de luxe low intensity projection lamp with folding doors and ammeter. (Specify carbon sizes). Order as Catalogue E-400 Brenkert Econarc with one folding door and without ammeter.

• • •

FOR BEST OPERATION, ALWAYS OPERATE ARC LAMPS FROM POWER SUPPLIES HAVING RECOMMENDED VOLTAGE AND REGULATION CHARACTERISTICS.

MANUFACTURED BY BRENKERT LIGHT PROJECTION COMPANY

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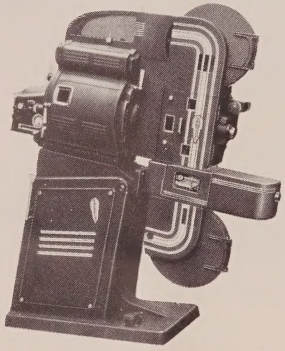
RCA THEATRE EQUIPMENT

RUGGED DEPENDABILITY, EFFICIENT PERFORMANCE, Flexibility and Completeness of RCA Theatre Equipment Line make it overwhelming choice of Nation's Drive-In Theatre Operators

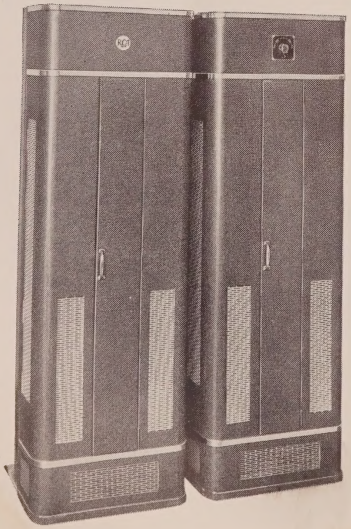
No other application makes greater demands upon picture projection and sound equipment than theatres of the drive-in type whose popularity has progressed by leaps and bounds. The enormous size of these theatres makes efficiency count heavily in the final results. Because of its sterling quality and highly efficient design, the apparatus made available through the RCA Theatre Equipment Division has been established as the prime favorite for this newest of motion picture theatre entertainment.



DRIVE-IN PROJECTION EQUIPMENT

Utilizing screens vastly larger than indoor theatres, the light efficiency on the part of the projection lamp and projection mechanism used for these theatres assumes greater importance. Brenkert lamps and Brenkert projectors have proved and are daily continuing to prove in drive-in theatres that they have the efficiency to match this need. And their rugged construction with their advanced engineering features make them the best bet for continual high class performance with a minimum of repair expense.

RCA Magicote gives these theatres an extra measure of projection lens efficiency and thereby increases the light flow through this vital link in the projection system.



DRIVE-IN SOUND EQUIPMENT

Sound projection systems for drive-in type theatres present an interesting array of layouts suited to a variety of geographical, physical, and legislative requirements. No matter what the preference or the requirement, RCA equipment is adaptable to the situation.

SOUNDHEADS AND AMPLIFIERS . .

Basic equipment for all RCA sound systems for drive-in type theatres is the big PG-142-M amplifier and soundhead equipment. It is conservatively rated at 60 watts minimum (Academy system for rating) and can be easily expanded by the addition of extra output amplifiers up to 360 watts total undistorted output. Engineering experts prefer these husky amplifiers not only because of their low distortion at high outputs but because their class "A" triode circuits make them exceptionally well suited to the widely varying loudspeaker loads encountered.

LOUDSPEAKERS . . .

There are high quality RCA loudspeakers for every type of loudspeaker installation whether centralized, multiple underground, multiple above ground, or in the car. The best choice rests upon a consideration of all factors. The in-car type, however, has quickly risen to a position of outstanding popularity. First choice for these theatres is the efficient RCA In-Car loudspeaker illustrated below. It combines high quality performance with light weight and extra features making for ease in handling.

THE RCA THEATRE EQUIPMENT DIVISION AND THE RCA THEATRE SUPPLY DEALER WILL GLADLY ASSIST YOU IN WORKING OUT YOUR DRIVE-IN THEATRE EQUIPMENT AND LAYOUT PROBLEMS.

RCA THEATRE EQUIPMENT

THE NEW RCA SNOWHITE SCREEN AND THE SEVEN REASONS

1. PROGRESSIVE DEVELOPMENT . . . In 1932 RCA introduced the first "High Fidelity" sound system to faithfully reproduce all the audible sound frequencies. Now RCA's pioneering research has developed the new RCA SNOWHITE screen to reflect equally all the visible light frequencies. This is now offered as a major improvement to give theatre patrons more of the light the exhibitor pays for in carbons and current.

2. COLOR SENSITIVITY . . . The RCA SNOWHITE screen is so named because it reflects white light without discrimination. All the materials used in its construction are snow white or crystal clear. There are no free light absorbing colors or metals used, or needed, either in the formula, or on the back of the screen. This feature makes the RCA SNOWHITE screen ideal for multi-color prints, enhancing more than ever before their "box-office" attraction.

3. REFLECTION EFFICIENCY . . . The perforated RCA SNOWHITE screen reflects 85% of all the white light projected on it. The complete lack of color, the densely compressed pure white pigment, and the crystal clear binder make the RCA SNOWHITE screen an almost perfect light barrier. The overall result is a brilliant picture, high in contrast, that reflects the utmost of photographic depth and detail.

4. DIFFUSION QUALITIES . . . Controlled diffusion has been engineered into the RCA SNOWHITE screen. Its semi-gloss surface steals light from the stage wings and ceiling and distributes it throughout the seating areas. The internal polygonal embossing breaks up the natural center aisle "hot spot", and converts it into useful light. This is similar to results achieved with directional microphones.

5. PRACTICAL VERSATILITY . . . All types of projection light may be used with the RCA SNOWHITE screen because it is not color selective. It will not exaggerate the yellow tint of low intensity and incandescent projection light. The exceptionally high reflection factor will make it welcome in more theatres using low-intensity or incandescent projection.

6. SOUND TRANSMISSION . . . As transparent to sound as it is opaque to light! The sound transmission of a screen is dependent upon its thickness, weight, stiffness, and perforation pattern. The compressed, light weight, flexible body of the RCA SNOWHITE screen, scientifically perforated, with an open area of 8%, give it a sound transmission quality well above SMPE specifications.

7. STRENGTH AND DURABILITY . . . A sturdy cotton drill, bleached and flameproofed, backs up the RCA SNOWHITE screen. This is a standard cloth for most expensive screens. It has been successfully tested for strength and discoloration against well known screens of proven characteristics. It is the result of exhaustive research and exacting tests, seasoned by fifteen years of screen manufacturing experience.

RCA MAGICOTE LENS SERVICE Saves Wasted Light!

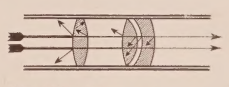
LIGHT REFLECTIONS by every air-glass surface of your projection lens rob you of as much as 30% of the light that *should* be directed on your screen. And those reflections ultimately reach the screen at the *wrong* places! As a result pictures lose much of their crispness, contrast and quality.

THE SOLUTION? Why not use RCA Magicote Lens Service! Applicable to all types of lenses, old and new, Magicote is a reflection-reducing coating of high efficiency and exceptional durability. No sealing of lenses is needed. There is no extra expense for recasing. All lens surfaces, both inside and out, can be treated . . . and Magicote can be wiped clean without damage!

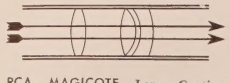
RCA Magicote is extremely durable and becomes even more durable as it ages. It clings tightly to the glass surface, but does not fuse with it. Thus it never impairs the surface of the glass itself.

WHAT TO DO! Carefully pack your lenses and ship via insured parcel post or express to RCA Manufacturing Company, Inc., 501 N. LaSalle Street, Indianapolis . . . attention R. A. Control Dept., Bldg. No. 1. Accompany with a letter or purchase order listing the lenses by make and serial number, stating where lenses are to be shipped and by what means.

COST The cost of applying RCA Magicote varies with the diameter and number of optical glass-air surfaces. Cost for 4 glass-air surfaces is $11.00 per lens, cost for 6 glass-air surfaces is $16.00 per lens, cost for 8 glass-air surfaces is $20.00 per lens. Prices subject to change without notice.



THE OLD WAY, each lens-surface reflects a portion of the light it is supposed to guide through to the screen. Some is lost; some is scattered diffusely over the screen—spoiling contrast and definition—and color rendering in color pictures!



RCA MAGICOTE Lens Coating greatly reduces reflection. More useful light is correctly directed to the screen; less is lost or scattered. MAGICOTE can be applied to any old or new lens; lens need not be recased, and can be cleaned any time by any competent projectionist.

SOLD THROUGH THE RCA THEATRE EQUIPMENT DIVISION, RCA MANUFACTURING CO., INC., CAMDEN, NEW JERSEY AND RCA THEATRE SUPPLY DEALERS

RCA THEATRE EQUIPMENT

Twenty Million People with Hearing Deficiency Offer Great Potential for Additional Motion Picture Theatre Patronage

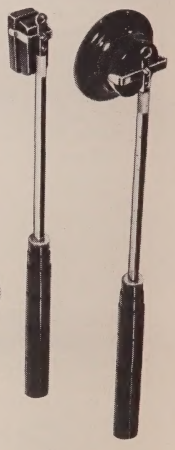
In terms of theatre patronage, 20 million people who are hard-of-hearing exert a great influence. Family and other friendly groups are the major source of entertainment patronage. The choice of the group is swayed by the need for a selection all can share. Talkies via hearing aids are the only outside amusement involving hearing that many of the hard-of-hearing can enjoy. Motion picture theatres equipped for these people can get a full share of the potential business they control.

More and more exhibitors with a vision for added service at extra profit are installing RCA Hearing Aids.

They are easy to install and surprisingly attractive in price. Efficient, lightweight RCA Hearing Aids are available in both air-conduction and bone-conduction types fitted with featherweight headbands or convenient telescopic lorgnette handles.

RCA Air-Conduction Hearing Aid with featherweight headband.

RCA Bone-Conduction Hearing Aid with featherweight headband.



At right: The same efficient RCA Hearing Aids attached to attractive, lorgnette handles.
RCA hearing aid line includes RCA amplifier, outlet boxes, etc., for complete installation.
See the nearest RCA Photophone Representative or Affiliated RCA Theatre Supply Dealer.

RCA THEATRE EQUIPMENT

BENWOOD LINZE RECTIFIERS FOR MOTION PICTURE EQUIPMENT

For Every Theatre Application — Low Intensity
Intermediate High Intensity — High Intensity

B-L rectifiers are built to high standards with a wide margin of safety for stable arc performance and continuity of operation.

Transformers with generous sized silicon-steel cores and heavily insulated coils exemplify the extra protection throughout that assures theatres of stable arc operation and freedom from overheating or breakdown.

Housed in pleasingly styled and sturdily built cabinets, their appearance harmonizes with other modern projection units.

Specify line voltage, frequency, make and model lamp, carbon sizes and amperes. For 2 phase state whether a.c. line has 2 or 3 wires.

B-L LOW INTENSITY RECTIFIER . . .Tube types, for operation 1 phase, 60 cycle, 220 volts or 110 volts. Also 25 cycle, 1 phase, 220 volts.

B-L HIGH INTENSITY TUBE TYPES . . . 40-50 amp., 27-35 volts. For operation on 3 phase, 25 and 60 cycles. Standard is 220 volts but others available.

B-L HIGH INTENSITY COPPER OXIDE TYPE . . . De Luxe units using Westinghouse elements. Available 40-60 amperes, 30-35 volts. For operation on 2 and 3 phase, 25-60 cycles.

MANUFACTURED BY THE BENWOOD LINZE CO., ST. LOUIS MO.
SOLD THROUGH RCA THEATRE SUPPLY DEALERS

RCA THEATRE EQUIPMENT

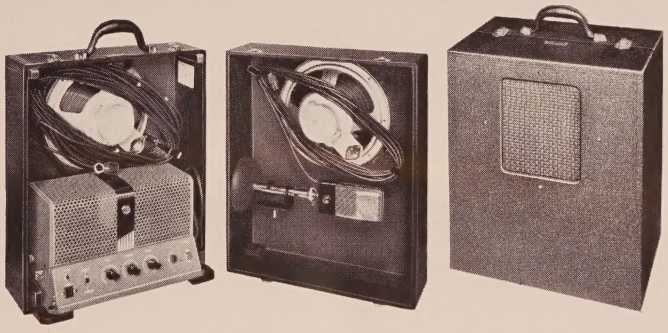
Make Your Programs More Effective with RCA Public Address and Record Playing Equipment! PORTABLE . . . PERMANENT . . . MOBILE

Brief news bulletins, contest announcements, amateur nights and similar activities are all handled better with RCA Victor Sound Equipment. A complete line for all types of applications.

Only a few of the items are listed on this page. An RCA Photophone representative will gladly assist in selecting apparatus best suited to your theatre's needs.

RCA PORTABLE SOUND SYSTEM TYPE PG-180

15 Watts — For Audiences up to 2,000 Persons



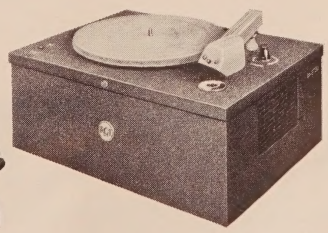
RCA Portable Sound System PG-180 is a complete system consisting of a 15 watt amplifier, a junior velocity microphone with table stand, and two large permanent magnet dynamic loudspeakers. When in use, the amplifier is removed from the case to permit placing the speakers where desired. Net weight, 43½ lbs., shipping, 70 lbs.

RCA ALL-PURPOSE SOUND SYSTEM

Operates from a standard 110 Volt A.C. power supply or from 6 Volt storage battery. Features include: 15 Watt amplifier, 110 Volt, 60 Cycle turntable motor, standby power switch, readily accessible power fuses, pilot light, high quality crystal pick-up, low power consumption.

RCA RECORD PLAYERS FOR THEATRES MI-9730

The RCA Theatre Record Player illustrated is model MI-9730. It weighs 25 lbs., is 9″ high, 6⅛″ wide, 2¼″ deep. Is especially designed for theatre use. Comes in attractively finished cabinet—all-metal and fireproof, with full underwriter's approval.



7 STATIONS ALL MASTERS

RCA TELEKOM SYSTEM Series "70", 7 Stations, All Masters

The RCA Telekom Series 70 System provides two to seven stations all inter-communicating. Each station has six push buttons which permit connection with any of six other stations. From one to three two-way conversations may be had over this system simultaneously and without interference.

FOR DESCRIPTION OF THE COMPLETE LINE OF RCA PUBLIC ADDRESS AND RECORD PLAYING EQUIPMENT ASK FOR CATALOG 216

RCA THEATRE SERVICE

Keeps 'em Running!

In these critical times equipment breakdown assumes even greater than ordinary importance. Equipment is more difficult to secure, and dark houses with lost box-office are always costly.

Preserve your equipment—keep it at maximum operating efficiency with RCA Service. RCA's nationwide service organization is well equipped to "Keep 'Em Running." With a large staff of trained, experienced Field Engineers, plus the backing of the largest research and engineering development group in sound, radio, and the allied arts, RCA Service will help you solve your problems, whether they apply to sound systems, public address equipment, acoustics, projection, radio or television.

Only RCA Service offers you these outstanding features:

FREQUENT SCHEDULE EQUIPMENT INSPECTIONS

Scheduled inspections of your sound equipment will be made, insuring peak performance and long life—preventing box office loss. Thousands of theatre exhibitors employ RCA contract service at surprisingly low cost.

PROMPT EMERGENCY SERVICE

RCA emergency service means quick action when you need it—and because RCA Field Engineers have wide experience, trouble can be isolated and corrected in the shortest time.

SOUND AND PROJECTION PARTS

RCA looked ahead, and is therefore prepared to more completely fill your parts needs. To further insure long equipment life, contract for the RCA plan which provides the furnishing of parts and tubes at a small yearly cost.

RCA MAGICOTE LENS SERVICE

This service is described in detail on a previous page. Lenses are coated with a new material that puts light that is otherwise wasted, to work on the screen. You get improved projection without spending any more for power or carbons. Projection brilliance is greater. Definition is much better. Ask for more information.

LABORATORY, ENGINEERING AND MANUFACTURING COORDINATION

Only RCA designs, manufactures, sells, installs and services theatre sound systems. The RCA service organization therefore benefits from broad fields of experience, and is in a better position to solve your problems.

PROJECTION ENGINEERING SERVICE

RCA Field Engineers will at any time be glad to discuss with you problems relating to your projection equipment. Their experience enables them to offer you valuable advice.

ACOUSTIC ENGINEERING SERVICE

If you have acoustic problems in your theatre, ask your RCA Field Engineer's advice. He can help you, and if complex situations exist, he has access to the RCA staff of acoustic engineering experts.

EMERGENCY PORTABLE SOUND SYSTEM

The RCA emergency portable system is employed in many theatres. Ready for use in a few minutes, it is an extra safeguard for your sound. It reduces still further the possibility of sound outages.

For more information about RCA Service ask your nearest RCA Service representative or write Service Division, RCA Manufacturing Co., Inc., Camden, N. J.

THEATRE EQUIPMENT

RCA Manufacturing Company, Inc., Camden, New Jersey • In Canada, RCA Victor Co., Ltd., Montreal • A Service of the Radio Corporation of America

A SUGGESTED CLARIFICATION OF *Carbon Arc Terminology*

An informative paper presented at the 1941 Spring Meeting of the S.M.P.E. at Rochester, N. Y. and reprinted from their Journal.

by H. G. MacPherson

(*Summary*—This paper presents definitions of the three general types of carbon arcs used in the motion picture industry, the distinction between them being based upon the origin and the character of the radiation in each case. In the low-intensity arc, the principal light-source is incandescent solid carbon at or near its sublimation temperature; in the flame arc, the entire arc stream, made luminescent by the addition of flame materials, is used as the light-source; while the high-intensity arc is one in which, in addition to the light from the incandescent carbon, there is a significant amount of light originating in the gaseous region immediately in front of the carbon. With these concepts as a basis, the theory of light generation in each case is presented with the object of further clarifying the distinction between the three types of carbon arcs.)

THE CARBON ARCS used in the motion picture industry are of three general types, the low-intensity arc, the flame arc, and the high-intensity arc. The low and high-intensity arcs have been used in both motion picture photography and in projection, although the former is now obsolete in photography, and is steadily being replaced by the more efficient high-intensity type in the projection field as well. The most important use of the flame arc in the motion picture industry is in photography, where it provides a broad beam of suitable color quality for general set illumination. The system of nomenclature that has grown up with the industry is more descriptive of certain types of lamp than of the character of the arc. Names such as "Mirror Arc," "Hi-Lo", "Simplified High-Intensity", "M. P. Studio," "Baby Spot," and "Sun-Arc" are in common usage, but some of these terms are not descriptive of either the arc itself, the mechanism, the optics, or the service. It is the purpose of this paper to define the arc itself, irrespective of the other factors just mentioned, so that a given trim may be readily classified as to whether it is a low-intensity, a flame, or a high-intensity arc.

AS A BASIS for classification, the physical nature of the light-source offers the most logical distinction. Therefore the definitions have been phrased from this standpoint, followed in each case by descriptive material in their support.

THE LOW-INTENSITY CARBON ARC.—The low-intensity carbon arc is one in which the principal light-source is incandescent solid carbon at or near its sublimation temperature.

In the vast majority of cases, this arc is operated on direct current, although a few carbons are still sold for alternating-current service. The direct-current arc uses neutral cored positive electrodes and either solid or cored negative electrodes. A neutral cored carbon contains a core consisting predominantly of carbon, less dense than the surrounding shell, and incorporating a small percentage of an arc-supporting material such as a potassium salt, which does not contribute significantly to the light. "White Flame A.C." carbons are used in the alternating-current, low-intensity arc. The core of these carbons contains flame-supporting material, the function of which is to steady the arc, quiet the hum, and whiten the light. In the direct-current arc, the crater face of the positive electrode is used as the light-source for projection, since it operates at a much higher temperature than the negative electrode, and so provides about 90 per cent of the total light from the arc. The bright spot on the end of this positive carbon has a rather sharply delineated boundary which is called the anode spot or the positive crater. This crater marks the region within which most of the electric current passes between the anode and the arc stream.

The surface of the crater is heated to its high temperature as the result of the absorption of energy from electrons discharged there, and the absorption of energy from the gaseous region known as the anode layer directly in front of the anode. The arc gas in the major part of the arc stream is very hot, having a temperature of 6000 degrees C or more, and is therefore highly ionized. In its highly ionized condition, it can carry the current with a fairly low voltage drop per unit length, amounting to about 20 volts per centimeter. In the anode layer, however, the gas is cooled by the proximity of the anode to such an extent that its degree of ionization, and therefore its electrical conductivity, is very low. Because of its low electrical conductivity, and because of space-charge effects, a high voltage drop must be concentrated in the region of this anode layer in order to force electrons through it, and thus conduct the arc current. This voltage is called the anode drop, and is of the order of magnitude of 35 volts for a low-intensity arc.

This energy dissipated at the anode heats it to incandescence, the maximum temperature obtained being limited by the sublimation temperature of carbon. This limits the maximum brilliancy of the low-intensity arc to a value of about 175 candles per square-millimeter. The area of the anode spot or crater adjusts itself for a given current so that the heat input is sufficient to bring the crater to a value near this sublimation temperature. An increase in current in the low-intensity arc will, therefore, not increase appreciably the maximum brightness, but will increase the area of the crater surface. Compared to a high-intensity arc, the current-density of a low-intensity arc is quite low. For the familiar commercial lamps, the current-density in the positive carbon ranges from approximately 50 to 200 amperes per square-inch.

It is interesting to observe that carbon is an ideal material for use as an electrode in such an arc, because it remains a solid at a higher temperature than any other substance of suitable electrical and thermal conductivity, so that a more brilliant light may be produced; while its property of volatilizing directly from a solid to a gaseous state permits convenient disposal of the consumed portion without danger to the associated mechanism.

THE FLAME ARC.—A flame arc is one in which the entire arc stream, made luminescent by the addition of flame materials, is used as a light-source.

The flame arc was a natural development from the low-intensity arc, obtained by enlarging the core in the electrodes, and replacing part of the carbon there by chemical compounds capable of radiating efficiently in a highly heated gaseous form. These compounds are vaporized along with the carbon, and diffuse throughout the arc flame, rendering it luminescent. The high concentration of flame materials in the core reduces the area and brilliance of the anode spot so that, at the low current-densities used in flame arcs, the contribution of the electrode incandescence to the total light becomes important. The evaporation of flame materials is slow relative to that obtained in a high-intensity arc,

and the resulting concentration of flame elements in the arc stream is low so that a high brilliance does not result. Since the whole flame is made luminous, however, the light-source is one of large area, and the radiating efficiency is high.

The radiation emitted by the flame arc consists chiefly of the characteristic line spectra of the elements in the flame material, and in the band spectra of the compounds formed. The rare earth metals of the cerium group are used as flame materials where, as in most cases, a white light is desired, while calcium salts are used to give a yellow light and strontium salts a red.

THE HIGH-INTENSITY CARBON ARC.—The high-intensity carbon arc as used for projection is one in which, in addition to the light from the incandescent crater surface, there is a significant amount of light originating in the gaseous region immediately in front of the carbons as the result of the combination of a high current-density and an atmosphere rich in flame materials.

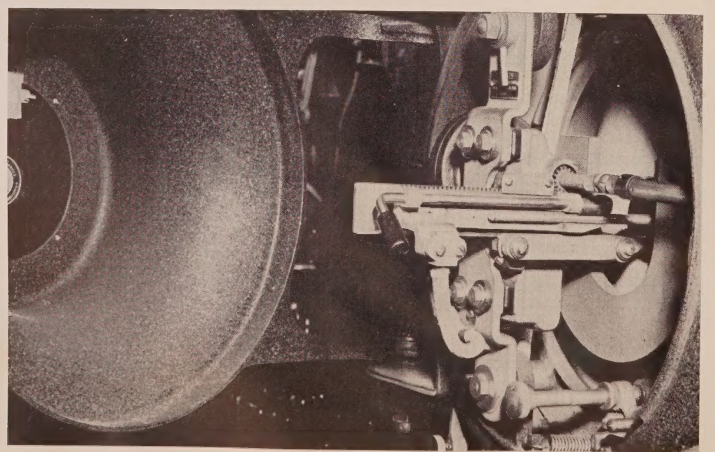
To produce a direct-current high-intensity arc, the positive carbon must be cored with chemical compounds similar to those used in flame arc electrodes. The current-density, however, is much higher, so that the anode spot spreads over the entire tip of the carbon, resulting in the rapid evaporation of flame material as well as carbon from the core. Since the flame material is more easily ionized than carbon, its presence in the anode layer results in a lower anode drop at the core area than at the shell of the carbon. This tends to concentrate the current at the core surface, resulting in the hollowing out of a crater as the current is increased. The rapid evaporation of the flame material produces a high concentration of this efficiently radiating gas in the crater, and immediately in front of it. This gas, of course, radiates in all directions, even back toward the crater surface, and consequently tends to serve as a blanket preventing the radiative cooling of the crater face. The heat liberated at the crater face must then be dissipated entirely through evaporation of more flame material, and through conduction back along the positive carbon. This, of course, tends to increase the evaporation of material within the crater, and aids in the tendency for crater formation. Thus in a high-intensity arc there is a close correlation between the crater depth and the brilliancy of the arc gas within and immediately in front of the crater; for a given type of positive carbon, there is a linear relationship between the crater depth and the excess brightness over that of a low-intensity arc.

An increase of current in a high-intensity arc increases the crater area only slightly, but produces a marked increase in brilliancy. The maximum brilliancy of the crater obtained in various types of direct-current high-intensity arcs used in common commercial lamps ranges from 350 to 1200 candles per square-millimeter with current-densities in the positive carbon ranging from 400 to well over 1000 amperes per square-inch. Experimental carbons have been produced with brilliancies in excess of 1500 candles per square-millimeter.

H. G. MacPherson attended the University of California at Berkeley, Cal., receiving an A. B. degree in 1932, and a Ph. D. degree in physics in 1936. Since early 1937 he has been engaged in fundamental research on carbon arcs at the Research Laboratories of the National Carbon Company.

The increased brilliancy of a high-intensity over that of a low-intensity arc is produced by radiation from the high concentration of flame materials within the confines of the crater. The thermal energy supplied by the electrical power input to the arc continually excites the atoms of the flame materials to higher energy states, and the excess energy of these atoms is being continually released in the form of radiation. The high density of radiation results in the production of a strong continuous spectrum in addition to the line spectrum of the flame elements. Since radiation in the visual range of wave-length from 4000 to 7000 Angstroms is required in motion picture services, the most efficient compounds to use as flame materials are those producing the most radiation in this spectral band. Nothing better than the rare earth metals, of which cerium, lanthanum, neodymium, and praesodymium are typical examples, has ever been found for this purpose. With complex atoms having many electrons, countless opportunities for the energy exchanges that give rise to radiation in the visual region are provided, so that no one part of the spectrum is unduly exaggerated, and a white light is naturally produced.

The alternating-current high-intensity arc is also a true high-intensity arc within the meaning of the definition proposed. The high current-density and the high concentration of flame materials combine to produce light both from the incandescent electrode and from the gaseous region immediately adjacent, as they do on direct current.



SUMMARY: The fundamental distinction between the different types of arc is based upon the origin and character of the radiation. The chief contributing factors associated with this are composition of carbon, current-density, and brilliancy. The low-intensity arc is one in which the principal light-source is incandescent solid carbon at or near its sublimation temperature. The high-intensity arc is one in which in addition to the light from the incandescent crater surface there is a significant amount of light originating in the gaseous region immediately in front of the carbon. In the flame arc the entire arc stream, made luminescent by the addition of flame materials, is used as the light-source.

MANY MEMBERS of the Cleveland and Fostoria laboratories, and of the carbon sales division of National Carbon Company have contributed to the material presented here, and the author gratefully acknowledges their assistance in this connection.

FACTORS AFFECTING—

Sound Quality in Theatres

From the Symposium on Projection prepared for the Projection Practice Committee of the S.M.P.E., reprinted from their Journal.

by Adolph Goodman

During the past 10 years a great deal of technical progress has been achieved in recording technic and in recording and reproducing apparatus, so that today these advances should be reflected in greater entertainment value of the motion picture. In spite of such improvements, there is much to be desired in the final presentation in theatres, mainly because there is a lack of proper coordination between the various phases that go to make up the ultimate sound as heard by the audience.

In this discussion, we shall point out the factors that must be considered, and how they affect each other from the standpoint of the presentation in the theatre. Assuming that the sound-track on the film is a faithful record of the original sounds, final results that the theatre patrons hear depend upon the following five important, closely related factors:

(1) The sound-reproducing system.
(2) The theatre acoustic condition.
(3) The screen.
(4) The adjustments of the sound system.
(5) The operation and maintenance of the sound system.

The Sound-Reproducing System—It is fundamentally important that the sound-reproducing system be adequate, since it is through this medium that the audience is expected to hear sounds as the studio directors and technicians originally conceived them. It is well known that inadequate sound reproduction can ruin an otherwise excellent picture, while sound properly reproduced adds greatly to the entertainment value of the motion picture action.

In the early days, equipments having output power up to 10 or 12 watts were considered satisfactory, while in many instances the power available was as low as one or two watts. Modern presentation of sound motion pictures requires considerably increased power for proper dramatic effects, and it is not unusual for the larger theatres to use as much as 150 watts of undistorted power. Even greater power is needed for showing pictures, such as Disney's "Fantasia," for creation of effects designed to stimulate the audience.

Realism in sound effects adds tremendously to the appeal of the screen action. Earthquake and warfare scenes must have sound accompaniment loud enough to make the audience feel that they are actual spectators at the scene of action. Thus, the small theatre as well as the large ones need apparatus having many times the power considered adequate in the past.

The Society of Motion Picture Engineers and the Academy of Motion Picture Arts and Sciences have studied the requirements for adequate theatre sound equipment to meet the needs of modern pictures, and the following specifications represent the results of these studies:

(1) Volume range of 50 to 60 db.
(2) Amplifier capacity in accordance with recommendations of Academy of Motion Picture Arts and Sciences. (See Research Council Bulletin, June 19, 1940.)
(3) Frequency response of 50 to at least 8000 cycles, with provision for extension to 10,000 cycles.
(4) Stage loud speaker system should have a high degree of efficiency, so that the required amplifier capacity need not be too great. The loud speaker system should have proper angular distribution so that all frequencies can be properly distributed throughout the theatre.
(5) The sound-head should have a "flutter" content imperceptible to the ear.
(6) The equipment should be easy to install and operate. Necessary operating controls should be accessible.
(7) Components of apparatus should be easily accessible for maintenance and service operations.
(8) Adequate emergency provisions should be incorporated.
(9) Provisions should be made for addition of apparatus that may be required in the future due to advancements in the art.

Theatre Acoustics.—Regardless of how well sound is reproduced by the stage speakers, the theatre acoustics greatly influence the final result. If a theatre is properly designed acoustically, it will allow the sound to arrive at the listeners' ears with naturalness and realism. If the theatre has any acoustic defects, the sound may be so changed in character that it arrives at the listeners' ears harsh, distorted, and very unsatisfactory.

In view of the technical progress that has been made in both recording and reproducing apparatus, it is more important than ever before that careful consideration be given to the acoustic design of the theatre. This is necessary in order to take full advantage of the ability of modern equipment to give a faithful reproduction of the original sound.

Some of the more common defects found in auditoriums that are detrimental to good reproduction are high reverberation time, echo, resonance, and extraneous noise from auxiliary equipment, or noises from sources outside the theatre. Many of these can be overcome or eliminated by proper consideration of such problems in the original design. Specifically, attention should be given to the shape and size of the theatre, the location and frequency characteristics of absorbent materials, and the insulation of walls and air-conditioning ducts to minimize the transmission of noise to the auditorium proper.

Fortunately, the present trend is toward coordination between acoustic treatment and the other functions of the auditorium such as lighting, decoration, air conditioning, etc. Thus the theatre architect can carry out a definite decorative scheme, and at the same time incorporate the necessary provisions to make the theatre suitable from an acoustic standpoint.

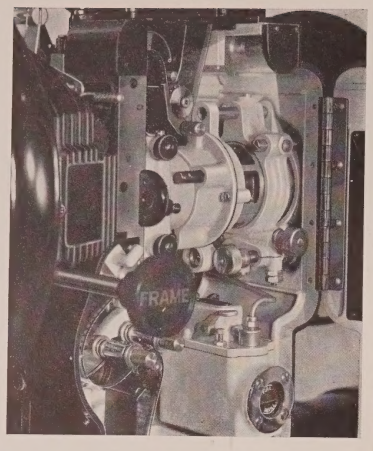
Screen—After the sound leaves the loud speaker system, it must pass through the screen before reaching the audience. Just as the acoustic condition of the theatre plays an important part in the final result, so does the screen influence the sound as heard by the listeners.

One of the improvements made in modern sound equipment is the extension of the upper audio-frequency range. A poor screen will not allow the high-frequency tones to be transmitted with the proper intensity, resulting in a loss of brilliance of the music and lack of intelligibility of speech.

The sound-transmission properties of a screen depend upon several factors, the most important of which are the size and number of perforations per square-inch and the thickness of the screen material. If the holes are too small or the material is too thick, then the screen presents too high an acoustic impedance to permit good sound transmission.

Even though a screen may be satisfactory when first installed, it may adversely affect the sound transmission after a

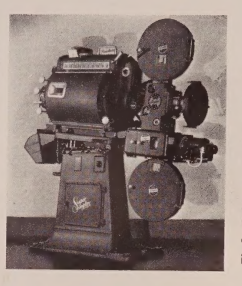
(*Continued on page 238*)



NOTHING FINER in all the World!

E 7

Simplex PROJECTOR



THE LIMITED SPACE ALLOTTED in this publication to Simplex products — the only complete line of motion picture equipment manufactured by any company—makes it necessary to greatly condense the information supplied. Under these conditions all that is possible is a partial listing of important integral parts with a brief reference to the purpose they serve. It would, of course, be more satisfactory to describe how these parts function as that would more clearly indicate the reasons for the great care taken in the design and construction of Simplex equipment but this information, if desired, may be secured from other sources or our own literature.

INTERNATIONAL PROJECTOR CORP.

THE SIMPLEX E-7 PROJECTOR MECHANISM gives a steadier image, a cleaner picture, one that is more brilliantly lighted, far greater period of peak performance, improved operating characteristics, greater operating convenience, and indirect but important benefits to sound and light. Simplex E-7 mechanism rids the projectionist of many small detail duties, and leaves him freer than he has ever been to secure perfect screen presentation. Simplex E-7 will prove a profitable investment from the standpoint of better entertainment, pleased patrons, increased boxoffice receipts, greater dependability, and reduction of maintenance costs — Simplex E-7, the World's Finest Projector.

SOME OF THE SPECIAL ADVANTAGES OF THE Simplex E-7 MECHANISM

SYNCHRONIZED FRONT AND REAR SHUTTERS—Shutters are on same shaft and each shutter acts upon one-half of the beam, creating a dissolving effect and giving 12½% more light. **More light, sharper picture, LESS EYE STRAIN.**

AUTOMATIC FIRE SHUTTER SAFETY TRIP — Releases fire shutter when film remains stationary. Cuts off light and heat. **Absolute Fire Safety.**

ONE-SHOT OILING SYSTEM—By a slight pressure on the oil pump lever, filtered oil is supplied in sufficient quantity at all times. **Cleaner Picture, Better Show, Longer Life, Less Maintenance.**

E-75 AIR DEFLECTOR AND APERTURE COOLING UNIT—Improves Light. Reduces Heat at the Aperture. Keeps Mechanism Cleaner. Prevents drawing of gasses from the arc lamp into the projection room.

REMOVABLE FILM GATE—Readily Demountable for Cleaning and Adjustment.

FILM GATE STUDS — Gate wobble eliminated. **Help Steady the Image. Proof Against Wear.**

CONE-SHAPED PAD SPRINGS — Pad keeps both edges of film under equal tension. **Reduces Sprocket Wear.**

TENSION PAD AND INTERMITTENT SHOE COMBINATION—Holds Film Securely for Steady Image.

DEMOUNTABLE FILM TRAP — Particles of emulsion can be easily cleaned away between reels. **Avoids Scratching Film.**

STUDIO TYPE GUIDES—Side motion of film controlled by replaceable guides acting in conjunction with guide rollers. **Prevent Side Sway of Film.**

THREADING FACILITIES—Quicker, more accurate threading. **Gives Projectionist More Time to Watch His Screen and Attend to Maintenance.**

FRAMING LAMP—Directly behind aperture. **Reduces Mis-framing.**

ILLUMINATED, WHITE INTERIOR — Dirt can be easily seen and promptly removed. **Promotes Cleanliness.**

SIGHT BOX — Easily removable, New fin construction. **Dissipates Heat.**

REAR SHUTTER COOLING FINS—Draw the air backward from aperture and pass it around outside the mechanism. **Insure Much Cooler Film Path.**

REAR SHUTTER GUARD—Can be quickly removed without disturbing lamphouse. **Simplifies Cleaning.**

RING TYPE GOVERNOR FOR FIRE SHUTTER — Unique type of control operates on principle of a gyroscope. **Bind-Proof, Silent.**

OVERSIZE DRIVE GEARS—Revolve on fixed studs. Place pressure of operation where it causes least wear. Rebushing of main frame eliminated. **Longer Life, Easier Maintenance.**

SYNCHRONIZING DEVICE — Prevents backlash and travel ghost caused by wear in shutter assemblies. **Gives Sharper Picture.**

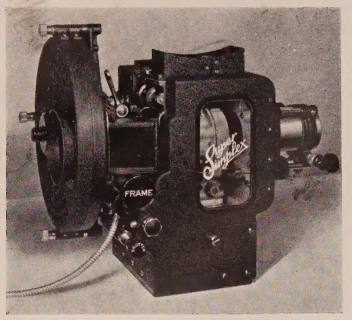
DOUBLE BEARING ARM AND COVER — Warp-Proof Under Any Lamp.

INTERMITTENT MOVEMENT—Readily removable. Unnecessary to take down or disturb any part of the soundhead. **Facilitates Maintenance.**

INTERMITTENT MOVEMENT OIL SYSTEM—Reservoir can be filled from either side. Excess oil overflows on drive side. **Prevents Blurred Pictures, Noisy Sound.**

SHOCK PROOF GEAR — Eliminates vibration caused by the action of the intermittent movement. **Results in Quieter, Smoother Operation.**

Simplex QUALITY WILL BE MAINTAINED UNDER ALL CONDITIONS

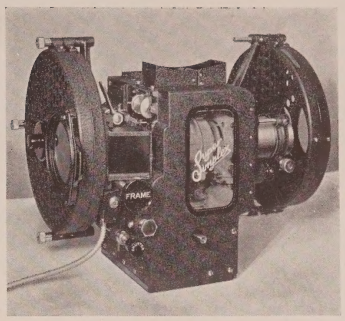


SUPER SIMPLEX MECHANISM

Super Simplex

REG U.S. PAT OFF

PROJECTOR



SUPER SIMPLEX MECHANISM
with FRONT SHUTTER ATTACHMENT

SUPER SIMPLEX has proved itself in thousands of large and small theatres in the United States and throughout the world because it is sturdy and steady, dependable, efficient and economical. It has all the basic mechanical excellence due to design and construction which has given Simplex equipment a world wide leadership for many years, plus many special patented features. Super Simplex Projector is an assurance of priceless Simplex dependablity, superior projection, ease of operation and low maintenance cost. Theatre owners desiring to give their patrons better projection will be glad to know that the synchronized front and rear shutters which are an integral part of E-7 Simplex Projector, can be supplied as an attachment for the Super Simplex Mechanism.

SOME OF THE SPECIAL ADVANTAGES OF THE Super Simplex MECHANISM

SUPER SIMPLEX REAR SHUTTER—Built as an integral part of the Super Simplex Mechanism. Reduces the heat at the aperture from 50% to 75% as compared with the old type Front Shutter.

ADJUSTABLE REVOLVING SHUTTER—Permits adjustment to compensate for wear in the gear train.

PATENTED FILM TRAP LOCKING DEVICE—Prevents film trap door being opened by film patches.

MAIN FRAME CASTING—Improved design and sturdier construction.

INTERMITTENT MOVEMENT—Patented star and cam adjusting feature.

LATERAL FILM GUIDE ROLLERS—Of large diameter. Revolve very easily. Eliminate possibility of cutting film by roller remaining stationary.

LENS HOLDER—Has front and rear lens supports and is rigidly attached to the main frame.

REMOVABLE FILM TRAP DOOR AND PRESSURE PAD ASSEMBLY—Very convenient for cleaning and repairing—eliminates "chatter".

HARDENED AND GROUND VERTICAL SHAFT — More than doubles wearing quality. Greatly reduces possibility of bindups.

HARDENED AND GROUND SYNCHRONIZING GEAR SHAFT — Reduces wear and increases smoothness of operation.

BAKELITE MICARTA GEARS—Give longer wear and quieter operation.

MAIN DRIVE GEAR FASTENING SCREW LOCKING DEVICE—Prevents loosening of main drive attaching screw.

MICROMETER FOCUSING DEVICE ON LENS MOUNT — Prevents backlash and maintains perfect focus.

MAIN DRIVE SHAFT—Hardened and ground, and tubular construction, provides reservoir for oil, insuring adequate lubrication at all times.

SLIP-IN TYPE APERTURE PLATE — For standard and special effects.

STAR WHEEL—This and other parts are hardened and then ground, which gives longer wear and permits finer tolerances than machining soft product and then hardening.

CAM AND CAM PIN—Quality of material, hardness, workmanship and exact tolerances make this far superior to any similar product. Insures quietness and smoothness of operation.

INTERMITTENT SPROCKET — Rims and Radii of teeth hardened, and ground to almost zero tolerance by specially designed precision machinery.

DYNAMICALLY BALANCED FLYWHEEL — Reduces vibration.

INTERMEDIATE GEAR SHAFT — Super Simplex hardened and ground intermediate gear shaft gives twice the wear of soft shafts.

SPECIALLY DESIGNED REAR SHUTTER BRACKET—Very sturdy and greatly reduces the possibility of vibration—an integral part of mechanism, not an attachment.

SYNCHRONIZED FRONT AND REAR SHUTTERS—Shutters are on the same shaft, and each shutter acts upon one-half the beam, creating a dissolving effect and considerably increasing illumination. **Better Light, Sharper Picture, Less Eye Strain.**

SUPER SIMPLEX PEDESTAL — Designed for modern heavy duty equipment, but so flexible little effort is required to raise or lower, or horizontally adjust the entire apparatus. Can be accommodated almost instantaneously to the screen position. Stand easily leveled at all four corners. Excellent rigidity secured by means of leveling bolts.

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NATIONAL THEATRE SUPPLY COMPANY
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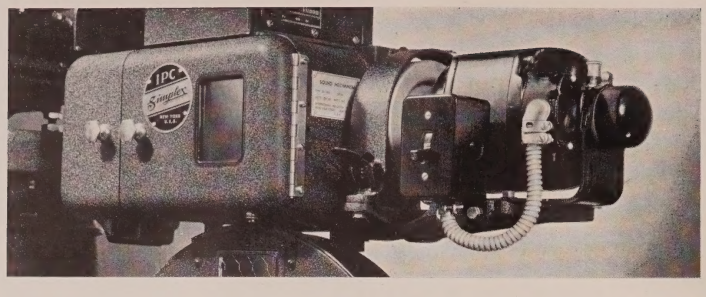


Simplex ★★★★ Sound SYSTEMS

THE HIGH STANDARDS we have created and maintained during the past 30 years enable users of Simplex ★★★★ Sound to give their patrons the finest possible entertainment at a moderate cost.

Simplex ★★★★ Sound in design and construction meets all the requirements of theatre owners for thoroughly modern equipment. It is so flexible it can readily accommodate dual track stereophonic recordings, push-pull and any of the proposed forms of the controlled track or other changes when approved by the motion picture industry. The quality of all Simplex Systems is the same, and patrons of small theatres as well as large, can derive all the enjoyment which is the result of true sound reproduction.

The SPECIFICATIONS shown herewith will permit theatre owners to meet their budgets and theatre requirements by installing the correct number of amplifiers to provide the proper output and equip with the number and types of loudspeakers to supply capacity and distribution.

SPECIFICATIONS

Simplex ★★★★ SOUND SYSTEMS

TYPE E

Simplex Four-Star Rotary Stabilizer Sound Heads
10 Watt Undistorted Output
Monitor Amplifier and Monitor Loud Speaker
2-Way Permanent Magnet Speaker System with:
- One (1) High and
- One (1) Low Frequency Speaker Unit
- One (1) 1 x 3 Exponential High Frequency Horn
- One (1) Low Frequency Folded exponential Horn

TYPE A-15

Simplex Four-Star Rotary Stabilizer Sound Heads
D.C. Excitation
15 Watt Undistorted Output
Monitor Amplifier and Monitor Loud Speaker
2-Way Permanent Magnet Speaker System with:
- One (1) High and one (1) Low Frequency Speaker Unit
- One (1) Multi-cellular exponential High Frequency Horn
- One (1) Folded exponential Low Frequency Horn

TYPE A-30

Simplex Four-Star Rotary Stabilizer Sound Heads
D.C. Excitation
30 Watt Undistorted Output
Monitor Amplifier and Monitor Loud Speaker
Dual Emergency Volume Control Amplifiers
2-Way Permanent Magnet Speaker System with:
- One (1) High and one (1) Low Frequency Speaker Unit
- One (1) Multi-cellular exponential High Frequency Horn
- One (1) Folded exponential Low Frequency Horn

TYPE B-30

Simplex Four-Star Rotary Stabilizer Sound Heads
D.C. Excitation
30 Watt Undistorted Output
Monitor Amplifier and Monitor Loud Speaker
Dual Emergency Volume Control Amplifiers
2-Way Permanent Magnet Speaker System with:
- Two (2) High Frequency and two (2) Low Frequency Permanent Magnet Speakers
- One (1) Multi-cellular exponential High Frequency Horn with double throat
- Two (2) Folded exponential Low Frequency Horns

TYPE B-60

Simplex Four-Star Rotary Stabilizer Sound Heads
D.C. Excitation
60 Watt Undistorted Output
Monitor Amplifier and Monitor Loud Speaker
Dual Emergency Volume Control Amplifiers
2-Way Permanent Magnet Speaker System with:
- Two (2) High Frequency and two (2) Low Frequency Permanent Magnet Speakers
- One (1) Multi-cellular exponential High Frequency Horn with double throat
- Two (2) Folded exponential Low Frequency Horns

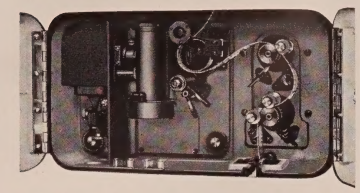
TYPE C-60

Simplex Four-Star Rotary Stabilizer Sound Heads
D.C. Excitation
60 Watt Undistorted Output
Monitor Amplifier and Monitor Loud Speaker
Dual Emergency Volume Control Amplifiers
2-Way Permanent Magnet Speaker System with:
- Two (2) High Frequency and four (4) Low Frequency Energized Speakers
- One (1) Multi-cellular exponential High Frequency Horn with double throat
- Two (2) Folded exponential Low Frequency Horns

FEATURES

Simplex ★★★★ SOUND SYSTEMS

SOUND HEAD MECHANISM



FILM MOTION past the scanning light beam is controlled by the well-known Rotary Stabilizer Principle.

PREFOCUSED EXCITER LAMP of new design for 9 volts, 4 amperes. Has a short sturdily supported filament minimizing vibration. Manufacturing tolerance on exciter lamp filament height is plus or minus .0012 inches. The exciter lamp bracket is easily removable and designed to permit vertical and lateral adjustments for exact positioning of filament. The exciter lamp compartment is well ventilated and careful shielding prevents any stray light from entering film compartment.

HIGHLY EFFICIENT OIL PROOF OPTICAL SYSTEM designed for protection against soiling.

PHOTO-ELECTRIC CELL vertical mounting eliminates microphonic noise. Completely out of way when threading film. Easily accessible for cleaning or replacement, less susceptible to static disturbances from film, gears, or take-up belt and well shielded against stray light. Impossible for oil to reach and saturate connecting wires and socket which are well protected and shielded in photo-cell arm casting.

LATERAL FILM GUIDE AND PRESSURE ROLLER equipped with trigger control for easy operation.

DRIVE MOTOR, cradle suspended, over-size, one-quarter horsepower split-phase induction motor with ball bearing mounted rotor, insures constant speed with variation of less than 0.5% with voltages from 105 to 125 volts. Flywheel of proper design insures correct starting speed.

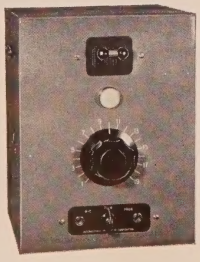
FILM DRIVE SPROCKETS, sound and holdback, included. All shafts of drive mechanism rotate on dust-proof ball bearings.

DRIVE MECHANISM ONE ASSEMBLY easily removable as a single unit by removing four screws.

SIGHT OIL GAUGE gives immediate and positive visual indication of oil level in reservoir. Insures proper lubrication of sound mechanism if oil level is maintained.

SOUND-HEAD design insures accurate alignment of projector drive gears and easy installation or removal of projector mechanism.

VOLUME CONTROL AMPLIFIER



CABINET is neat and compact. Permits mounting on front wall of projection room to avoid vibration. May be partially recessed in wall for concealment of wiring.

VOLUME CONTROL for system is a special design, de-tented step-by-step potentiometer having 19-2db. steps.

TWO-STAGE RESISTANCE COUPLED VOLTAGE AMPLIFIER employing 6J7 tubes has a 46db. gain. Normal operation at 26db. Metal type 6J7 selected for inherent shielding, uniformity and freedom of microphonic tendencies.

ELECTRONIC SOUND CHANGE-OVER comprises a three-way switching arrangement, one at each projector station, to control bias of second stage of volume control amplifier. This method of change-over control is instantaneous and noiseless since it avoids the necessity of breaking the signal circuit. Switching may be made at either projector. The exciter lamp circuit is simultaneously transferred in the change-over operation.

PHOTO-ELECTRIC CELL BALANCES equalize the signal input to the power amplifier.

DUAL AMPLIFIER UNITS with single shaft, operating both volume controls in unison, can be accommodated. This provides for emergency operation or dual track reproduction.

POST-EQUALIZATION. Design provides for incorporation of post-equalization facilities to properly reproduce special "pre-equalized" recordings at such time as they may be generally released.

CO-AXIAL CABLE of special low capacity couples photo-electric cell output to volume control amplifier. Low capacity shielded cable connects volume control amplifier to power amplifier.

MAIN AMPLIFIER EQUIPMENT

POWER TRANSFORMER mounted on each amplifier chassis is oversize to render continuous service on 50 or 60 cycles and tapped to compensate for various line voltages of 105, 115, and 125 volts.

AMPLIFIER FREQUENCY CHARACTERISTICS. Warping adjustments permit variations in the low frequency and high frequency response characteristics, to match various loudspeaker characteristics and equalize for theatre acoustic conditions.

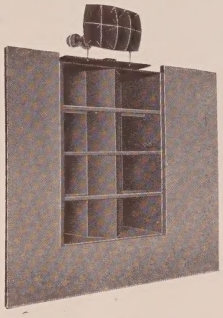
LOUDSPEAKER NET-WORK with 400 cycle crossover couples amplifier output to the two-way loudspeaker system. Special design features, careful selection of capacitors, resistors, and other parts afford stability of operation under all conditions.

LOUDSPEAKER NET-WORK CONTROL PANEL incorporates switches for speaker testing and emergency operation on low frequency speakers only.

AMPLIFIER SWITCHING FACILITIES are provided which permit isolation of an inoperative amplifier from the signal circuit without disconnecting from power supply.

COMPACT, STURDY CONSTRUCTION throughout minimizes space, simplifies installation, and reduces maintenance cost. All parts on special mountings easily removable to facilitate servicing.

LOUDSPEAKER EQUIPMENT



Genuine two-way loudspeaker system supplied with all Simplex ★★★★ Sound equipments to assure highest quality reproduced sound and uniform distribution, covering every seat in theatre, without distortion due to overload.

HIGH FREQUENCY LOUDSPEAKER. Genuine multi-cellular exponential horn.

LOW FREQUENCY LOUDSPEAKER folded exponential horns of wood construction throughout. Driving units of high power handling capacity and efficiency.

MONITOR LOUDSPEAKER TYPE LU-100. Design is a definite step toward extension of the frequency response over that generally found in monitor speakers.

MONITOR AMPLIFIER TYPE AM-107 provides adequate power to drive the monitor loudspeaker.

EXCITER LAMP OPERATION ON ALTERNATING CURRENT is possible in the event of failure in the rectifier system regularly supplying direct current.

Manufactured by

INTERNATIONAL PROJECTOR CORPORATION

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(*Continued from page 233*)

period of use. The perforations will gather dust, and eventually the hole diameters will be restricted, causing a reduction in high-frequency transmission. More frequently loss of transmission qualities are due to resurfacing the screen, in an attempt to improve the light-reflecting qualities. Any attempt to overcome such adverse conditions of the screen by recompensating the sound system to accentuate certain frequency bands results in ragged response and uncomfortable hearing conditions as far as the audience is concerned.

ADJUSTMENTS OF THE SOUND SYSTEM.—While present-day theatre sound apparatus is capable of reproducing with greater fidelity, the various components must be more carefully installed and adjusted than has heretofore been necessary. Low-level circuits should be carefully shielded and grounded to prevent the introduction of extraneous noises into the system. Correct power-transformer taps should be used, depending upon the line voltage. Voltages and currents in tubes, exciter lamps, and loud speaker fields should be checked to be sure they conform to specifications. In addition, the mechanical apparatus should be carefully inspected, oiled, and adjusted before any film is run. After these preliminary adjustments have been made, then the amplifier system should be set to conform to the frequency response characteristic set up for that particular system. Experience with a large number of installations has shown that the standard electrical characteristics will prove to be satisfactory in the vast majority of theatres.

To secure uniform frequency balance, proper distribution of high-frequency tones, and equalized volume levels in the various parts of the theatre, it is necessary to pay special attention to the installation and adjustment of the stage loud speaker system. One of the most satisfactory speaker set-ups is that in which the high frequencies are reproduced by a cellular type of horn, and the low frequencies by some type of folded horn, with a suitable cross-over network to separate the two frequency bands properly. Since frequencies above 300 cycles become directional, and beyond 2000 cycles have a beam effect, the positioning of the high-frequency horn is extremely critical in arriving at the best setting for uniform sound distribution. Also, the high-frequency horn must be properly set with respect to the low-frequency unit to obtain the correct phase relation between the sounds emanating from both sources. Usually, this dimension is specified by the manufacturer, but the actual relative positions are subject to slight variation in practice, and must be checked during the tune-up process.

At present, the most satisfactory means for adjusting the balance and distribution in the auditorium is by use of the Academy Research Council Theatre Sound Test-Reel and by careful listening tests in all parts of the theatre. Since the test-reel contains selections of regular release prints from the various major Hollywood studios, once the equipment has been adjusted properly it will reproduce the product of all studios with uniformly good quality.

OPERATION AND MAINTENANCE OF THE SOUND SYSTEM.—The preceding discussion pointed out how the condition of the theatre and the equipment affects the sound reproduction. Of equal importance are the operation and maintenance of the sound system. Since the apparatus consists of delicate mechanical parts and sensitive electrical circuits, it must be kept in good condition at all times.

An important point in practical operation is the setting of the sound volume level for the auditorium to allow the audience to hear comfortably. It must be remembered that the frequency response of the human ear changes for different sound levels. When the response of the sound system is adjusted for proper balance between high and low frequencies for a certain optimum level in the auditorium, the pictures reproduced at this level are natural and pleasing. However, if the average level is increased or decreased, the sound quality changes appreciably and the balance is destroyed. Generally if the level is set too low, the sound loses "screen presence," giving the impression that the actors are far behind the screen. If the level is too high, certain features of voice reproduction are over accentuated, and the sound becomes extremely irritating (e.g., excessively strong sibilants.) Projectionists can determine the average gain setting for their theatres that will give the most pleasing and understandable sound. Once this has been determined, there should be no necessity for "riding" the gain control during the showing of a picture.

Because of the many delicate adjustments that must be maintained it is extremely important that the equipment be inspected periodically. Quite often the quality of the sound will deteriorate slowly, but not enough to be noticed immediately. Such a condition can be checked quickly, provided the system is regularly adjusted, to be sure that it performs in accordance with the standards originally set for that particular type. Such inspections require the use of proper tools and test equipment, including electrical meters specially designed for the purpose, flutter indicator, and special test-films. Worn parts in the soundheads should be replaced before they adversely affect the sound reproduction.

Adolph Goodman, a graduate of Syracuse University in 1925, with an E. E. degree, was employed by the New York Edison Company as junior engineer from 1925-1929. He then joined RCA Photophone in New York as field engineer, installing and servicing theatre sound equipment. He was transferred to Camden, N. J., in 1932, with the national service organization of the company. Since then he has been in charge of all technical service publications, and since 1939 has been assistant manager of the RCA Installation and Service Division in charge of Photophone and commercial sound installation and service activities. Born in Yonkers, N. Y., on April 2, 1903, he received his preliminary education at Sea Cliff, L. I. He is a member of Tau Beta Pi, national honorary engineering society; Society of Motion Picture Engineers; and a member of the theatre engineering committee and chairman of the sub-committee on "Tools, Tolerances, and Safety Factors."

★

Author's Note

IN ADDITION to keeping the sound quality at a high level, another important consideration today is prolonging the life of existing sound equipment. Not only is it of prime importance to the economic welfare of the exhibitor, but it is a patriotic duty because theatres contribute greatly to building and maintaining public morale during these trying times.

Fundamentally any mechanical or electrical device will function better and last longer if it is given proper care. An automobile will ride smoother, operate more economically, and have a longer useful life if it is driven with care, and is serviced periodically. Theatre sound equipment is no different from other apparatus in this respect.

Those exhibitors who realized prior to the national emergency that proper maintenance of sound equipment paid dividends are now reaping the benefits of their foresight. Now is the time for each exhibitor to arrange for a periodic inspection and adjustment of his sound equipment to be sure it will operate at peak performance and to prolong the life of the system.

the Sign
AUTHORIZED DEALER
IN
Motiograph
PROJECTORS
AND
MIRROPHONIC
De Luxe
THEATRE SOUND SYSTEMS
of a First Class INDEPENDENT
THEATRE SUPPLY DEALER
Theatre Owners and Theatre Architects can place implicit confidence in the good judgment of the dealer displaying this banner. From the many Sound and Projection lines available, he has selected the one with the longest record of quality performance. His objective is to serve you NOW . . . with equipment which will provide many thrifty trouble-free years of operation. His advice merits your earnest consideration.
MOTIOGRAPH, INC.
CHICAGO, ILLINOIS
Established 1896

THE *Best* SOUND SYSTEM . . . for every PURSE and PURPOSE!

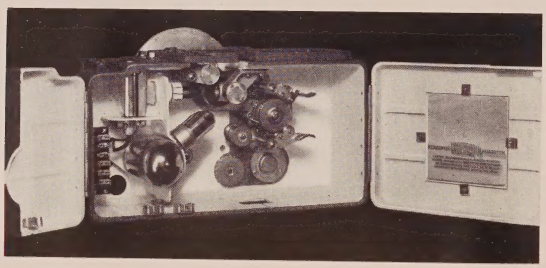
THE NEW MIRROPHONIC *De Luxe* THEATRE SOUND SYSTEMS

SEATING RATINGS:

Model	Maximum Seating Cap.	Model	Maximum Seating Cap.	Model	Maximum Seating Cap.
M-9	800	M-9 Dual	1500	M-13-A (Dual)	2000
M-10	800	M-10 Dual	1500	M-14-A (Dual)	3000
M-11	1000	M-11 Dual	1750	M-15-A (Dual)	6000

MOTIOGRAPH, INC.

FROM THE SMALLEST MODEL M-9



TO THE LARGEST MODEL M-15-A (DUAL)

The Mirrophonic De Luxe Rotary Stabilizer 7500 Reproducer, standard equipment in all models of the Mirrophonic De Luxe Sound System line, is manufactured by Motiograph, Inc., and based on designs of Electrical Research Products Division of Western Electric Company.

Model M-9 CONTAINS: 2 Rotary Stabilizer Sound Reproducers; 1 Motiograph 18-Watt Main Amplifier; 1 Motiograph Preamplifier; 1 Motiograph Power Unit; 1 Network; 1 Electro-dynamic High Frequency Unit; 2 15" Electro-dynamic Low Frequency Units; 1 Multi-cellular Horn; 1 Baffle (8' x 3½' x 7'); 1 Monitor Loudspeaker; 1 Set Standard Vacuum Tubes.

Model M-9 Dual CONTAINS: All the same components as Model M-9 except that MODEL M-9 DUAL CONTAINS: 2 Motiograph 18-Watt Main Amplifiers; 1 Switching Panel; 1 Amplifier Rack.

Model M-11 CONTAINS: 2 Rotary Stabilizer Sound Reproducers; 1 Western Electric 15-Watt Main Amplifier; 1 Western Electric Preamplifier; 1 Western Electric Power Unit; 1 Set Western Electric Vacuum Tubes; 1 Network; 1 Electro-dynamic High Frequency Unit; 2 15" Electro-dynamic Low Frequency Units; 1 32-cell Multi-cellular Horn; 1 Folded Low Frequency Horn (7½' x 2½' x 3½'); 1 Monitor Loudspeaker.

Model M-10 CONTAINS: All the same components as Model M-9 except that Western Electric Company manufactures the Main Amplifier, Preamplifier and the Vacuum Tubes instead of Motiograph, Inc.

Model M-10 Dual CONTAINS: All the same components as Model M-10 except that MODEL M-10 DUAL CONTAINS: 2 Western Electric 15-Watt Main Amplifiers; 1 Switching Panel; 1 Amplifier Rack.

Model M-11 Dual CONTAINS: All the same components as Model M-11 except that MODEL M-11 DUAL CONTAINS: 2 Western Electric 15-Watt Main Amplifiers; 1 Switching Panel; 1 Amplifier Rack; 2 Electro-dynamic High Frequency Units.

Model M-13-A Dual CONTAINS: 2 Rotary Stabilizer Sound Reproducers; 2 Western Electric 15-Watt Main Amplifiers; 1 Western Electric Preamplifier; 1 Western Electric Power Unit; 1 Set Western Electric Vacuum Tubes; 1 Network; 2 18" Electro-dynamic Low Frequency Units; 1 32-cell Multi-cellular Horn; 2 Electro-dynamic High Frequency Units; 1 Baffle (11' x 3' x 9'), 1 Monitor Loudspeaker.

Model M-14-A Dual CONTAINS: 2 Rotary Stabilizer Sound Reproducers; 1 Western Electric 50-Watt Power Amplifier; 2 Western Electric Main Amplifiers; 1 Western Electric Preamplifier; 2 Western Electric Power Units; 1 Set Western Electric Vacuum Tubes; 2 Amplifier Racks; 2 Electro-dynamic High Frequency Units; 4 18" Electro-dynamic Low Frequency Units; 1 Network; 1 60-cell Multi-cellular Horn; 1 Double Section Baffle (11' x 3' x 9'); 1 Moniter Loudspeaker; 2 Switching Panels.

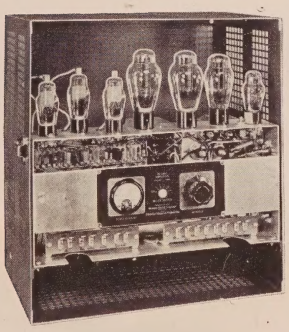
Model M-15-A Dual CONTAINS: 2 Rotary Stabilizer Sound Reproducers; 2 Western Electric 50-Watt Power Amplifiers; 2 Western Electric Main Amplifiers; 1 Western Electric Preamplifier; 2 Western Electric Power Units; 1 Set Western Electric Vacuum Tubes; 2 Amplifier Racks; 4 Electro-dynamic High Frequency Units; 4 18" Electro-dynamic Low Frequency Units; 1 Network; 2 32-cell Multi-cellular Horns; 1 Double Section Baffle (11' x 3' x 9'); 1 Monitor Loudspeaker; 2 Switching Panels.

ALL MODELS ALSO INCLUDE as associated equipment: amplifier, preamplifier, network and power unit cabinets, extension controls for 2- or 3-machine operation and adapter parts for standard projector pedestals. All dual models have one or more amplifier racks and switching panels.—DC EXCITATION, FIRST QUALITY ROTARY STABILIZER SOUND REPRODUCERS AND ELECTRO-DYNAMIC LOUDSPEAKER SYSTEMS UTILIZED IN ALL MODELS.

Western Electric

AMPLIFIERS

The amplifiers and preamplifiers furnished in Models M-10 to M-15-A inclusive, are manufactured by WESTERN ELECTRIC COMPANY, who, with Bell Telephone Laboratories developed the first practical talking picture apparatus. The designs of the WESTERN ELECTRIC amplifiers pictured are owned by Motiograph, Inc. and are available only in the Mirrophonic De Luxe line. In all models, containing two or more main or power amplifiers, emergency facilities are provided that assure sound in event of failure of any one of the main or power amplifiers.

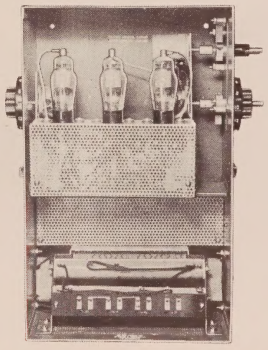


MAIN AMPLIFIER

WESTERN ELECTRIC'S latest circuits used throughout, achieving amazing superiority in range of sound quality and power.

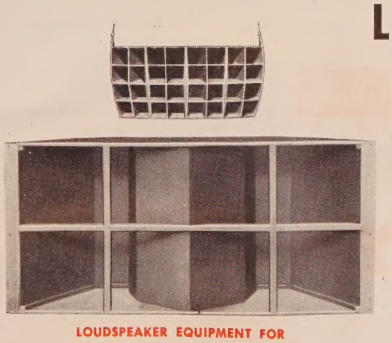
PREAMPLIFIER

Today's entertainment calls for the dramatic contrast of thrilling sound and absolute silence. Concentric feed lines from photo-electric cell to preamplifier safeguard against noise pick-up, assures dramatic silence.



The smashing power, the noise-free silence, definition and living quality of WESTERN ELECTRIC'S mighty amplifiers, plus high quality two-way reproducing speaker systems and the sturdy 7500 reproducer with its simplicity, smoothness, absence of flutter and watch-like precision of workmanship, brings to the owner of a Mirrophonic De Luxe Sound System the finest, fullest, most life-like sound reproducion ever heard.

LOUDSPEAKER EQUIPMENT



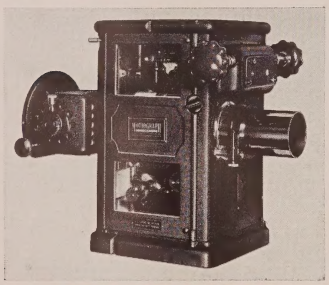
LOUDSPEAKER EQUIPMENT FOR MODELS M-11 AND M-11 (DUAL)

In the Mirrophonic De Luxe Sound System line, particular care has been given to the design and construction of the two-way loudspeaker systems employed. The multi-cellular horns, the electro-dynamic high frequency units, the electro-dynamic low frequency units, the folded horns or baffles and the dividing networks all represent the most advanced of modern design. All loudspeaker assemblies from the system furnished in the smallest model to the gigantic system of the 15-A (dual) model with its four electro-dynamic high frequency units, its four 18" electro-dynamic low frequency units, its two 32-cell multi-cellular horns and its double section baffle standing 9 feet high and 11 feet across give an unsurpassed degree of performance in reproducing sound faithfully and with uniform distribution throughout the auditorium.

Motiograph PROJECTORS

REFLECT 46 YEARS OF CONTINUOUS MANUFACTURING EXPERIENCE, MODERN ENGINEERING AND SUPERB CRAFTSMANSHIP . . . BUILT WITH THE MOST EXACTING DEGREE OF PRECISION WORKMANSHIP IN THE INDUSTRY, THE MOTIOGRAPH IS PREPARED TO GIVE CONSISTENTLY OUTSTANDING SCREEN RESULTS AT MINIMUM OPERATING COSTS FOR A LONGER PERIOD THAN ANY OTHER PROJECTOR.

ENTIRELY EXCLUSIVE with the Motiograph is its cylindrical double-blade shutter rotor, each blade of which cuts one-half of the light beam, thus creating Motiograph's exclusive and flickerless dissolving effect, as well as a sharper picture.



THE MOTIOGRAPH MODEL K MECHANISM

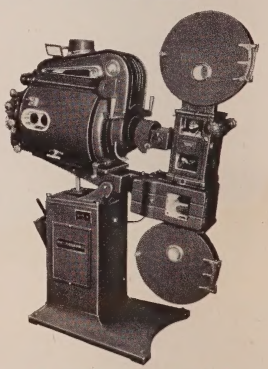
THE ONE-PIECE SHUTTER ROTOR, statically and dynamically balanced, runs freely on large ball-bearings and is designed to quickly dissipate the intense heat of the arc lamps and keep the film tension system cooled to room temperature.

THE MOTIOGRAPH INTERMITTENT MOVEMENT has a unified drive with a ball-bearing end thrust, web-backed star wheel, sprocket and cam of hardened steel, all precision ground . . . Oil-absorbent bushings only are used, which are unbelievably wear-resisting. . . . Movement is grease lubricated, automatically eliminating any oil leakage.

THE CASE, doors and main frame, all made of cast iron, are designed for strength and rigidity . . . The main frame utilizes removable oil-absorbent bushings, which permit quick replacement, when necessary, of standard sized shafts.

ALL SHAFTS are hardened and ground, giving long-wearing, quiet operation which reduces possibility of bind-ups caused by the uneven wear of soft-metal shafts. All steel gears are precision generated to exacting tolerances and are made either of hardened or special wear-resisting steels.

MOTIOGRAPH'S SILENT BALL-BEARING gear drive meshes in perfectly with all standard soundheads . . . Built-in adjustment permits absolute fit without use of shims.



THE MOTIOGRAPH MODEL K MECHANISM WITH THE MODEL "S" ECONOMY BASE

Motiograph Projector Mechanisms are available with two different Bases, THE DE LUXE BASE, which is made of cast iron and weighs 415 pounds . . . eliminating all possibility of vibration. It includes a tilting device equipped with ball-bearings for smooth, easy adjustment of projection angle, four corner leveling screws, built-in sturdy 100-ampere arc switch, compartment for carbons, a motor switch on each side and many more features to make it the accepted standard of quality; THE MODEL "S" BASE, which is built for users to whom first cost is the most important consideration, yet it includes many desirable features of the higher priced De Luxe Base.

FOR MORE DETAILED INFORMATION AND PRICES

MOTIOGRAPH, INC.

CHICAGO, ILLINOIS

OR YOUR NEAREST "FIRST CLASS" INDEPENDENT DEALER

MOTIOGRAPH, INC.

Equipment Requirements

FOR THE MODERN PROJECTION ROOM

Recommendations of Projection Practice Committee of Society of Motion Picture Engineers. Reprinted from their Journal.

by J. J. Sefing

WHAT IS INSTALLED in a modern projection room is of great importance to all connected with the motion picture industry. A projection room may possess all the requirements for a safe and efficient layout, and still remain equipped with obsolete or inadequate apparatus. To set a 100 per cent workable standard is quite impossible, but from everyday practical experience much knowledge has been gained that tells us quite accurately just what a piece of equipment will do and how the equipment can best be applied.

In the old "magic-lantern" days, a projector was bought haphazardly, not as a matter of choice but because of the limitations of the infant industry. At the present time, there is no legitimate excuse for not knowing what is best and most efficient in motion picture equipment, as nearly everyone is "picture conscious", and is clamoring for good screen performance. A good projection room layout has well planned and sufficient working space around the various pieces of equipment for the convenience of the projectionist, and the equipment installed therein is adequate for the needs of the particular theatre. However, in many instances, projection rooms in theatres are not provided with adequate and suitably planned space for the workers and the equipment, and it is for the designers of such rooms that reliable information should be available as to the most practicable methods and procedures.

IN PURCHASING and installing projectors, several important items should be carefully considered. The pedestal or base should be sufficiently strong and steady to support properly the heavy load of the lamp house, magazines, and mechanisms in order to produce a steady picture on the screen. An old-type, obsolete pedestal, even with makeshift braces, cannot be as steady and reliable as a pedestal especially designed to carry the load of the modern projector and sound mechanisms. A lamp house should be selected that will be adequate for the size of the picture and the auditorium. At present there are three arc lamps on the market that are widely used, each having its advantages and specific applications. Theatres having an average-size picture of 14 x 18 feet should have at least a "1-kw" arc, thus providing a minimal (14 foot lamberts ideal or desirable) screen brightness of nine foot-lamberts; with a picture size up to 17x22 feet, the "Suprex"-type arc will produce minimal brightness; for pictures wider than 24 feet, high-amperage condenser type arc should be used.

Author's Note

FOR THE SMALL THEATRE, having the average-size screen of 12x16 feet, a 27.5-volt, 40-ampere d-c arc is very satisfactory as to operation and screen results. In the average-size theatre, with a screen size up to 15x20 feet, the 31-40 volt 32-65 ampere d-c arc is most widely used, and gives very satisfactory performance. For the unusually large theatre, a 67-78-volt 120-180-ampere d-c arc generally is used, with brilliant screen coverage. It must be kept in mind that these lamps require certain special d-c supply equipment for good efficiency and practicability in operation. The 27.5-volt arc requires a specially designed motor-generator set or a special rectifier, as it is very sensitive to fluctuations in current which directly affect the stability of the arc and the rate of feed of the carbons. Direct current from the outside 115-volt power mains may be used with special ballast rheostats of 115-27.5 volt rating, but any fluctuation in the power line, which happens quite frequently, will be quickly noticed at the arc and screen. With the 31-40-volt arc or, as it is widely known, the "Suprex", a special motor-generator or rectifier should be used for economy of operation. In a number of cases, an old 80-volt motor-generator set is used with special ballast rheostats to cut down the voltage from 80 to 32 volts at the arc.

This method is not efficient, as there is quite a loss of power in the rheostat, due to heating, which must be paid for without deriving any benefits in screen performance. To choose between a motor-generator set and a rectifier is quite difficult if both are designed to produce the required d-c voltage and current at the arc. Some prefer the motor-generator, feeling that it is sturdier, more stable, and has a longer trouble-free life; others believe that the rectifier has somewhat better operating efficiency and lower initial cost. This question the purchaser must answer for himself with regard to what is best for his pocketbook and particular needs. However, at present, the range of the rectifier is limited, and when steadier and higher screen brightness is desired or required, the motor-generator set must be used.

With regard to the upper and lower magazines on the projector, there is nothing special about them except that the 2000 and 3000-foot types are quite regularly used. The takeups at the lower magazine are of several types; the friction type, the friction even-tension type, and the fluid drive. There are three methods of driving—belt, bicycle chain, and silent chain.

The selection of the projector mechanism is of prime importance, as its operation is very delicate, and the parts must be precision-made, with a high degree of accuracy. The average projector mechanism must operate about 12 hours per day, over a period of one to two years, pulling a 35-mm film intermittently at a rate of 90 feet per minute, or 24 pictures a second, and magnifying a frame area of about 1/2 square-inch to about a screen area of 350 square-feet. It can be seen that the proper selection of the projector mechanism is of great importance in assuring trouble-free operation and screen results as fine as it is possible for modern mechanisms to produce.

For picture change-over from one projector to another, a good type of electrical device should be used. A projectionist can not make a good change-over when he has to manipulate a home-made device. Everything in the projection room is timed so precisely that anything that disrupts or hinders the timing will show itself quickly on the screen.

Regarding the sound equipment, a choice of several well known systems can be had today. The amplifier, monitor, volume controls, and change-over device should be installed as near to the projectionist as is practicable, within the available working area, for convenience of manipulation. The dials, switches, and pilot-lights should be so arranged in the sound equipment as to be easily distinguishable.

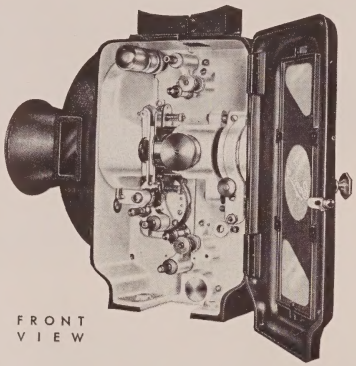
IN PLANNING the projection facilities, three separate rooms should be provided: one for the two projectors, the spotlight or third projector, the sound equipment, and, in the larger theatres, the dimmer bank; a second room, for the rewind equipment; and a third room for the d-c generating equipment. A separate toilet and wash room should be provided near the projection room proper; in some

Century

"THE PROJECTOR OF THE CENTURY"

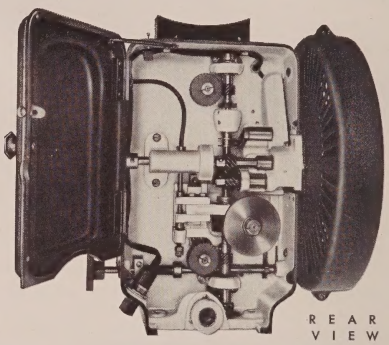
A COMBINATION OF EXPERIENCE, ENGINEERING DEVELOPMENT AND MECHANICAL SKILL

WORLD-WIDE THEATRE OPERATION HAS PROVEN ITS SUPERIORITY



FRONT VIEW

MODEL 'C' SINGLE SHUTTER MECHANISM



REAR VIEW

MODEL 'CC' DOUBLE SHUTTER MECHANISM

Outstanding Features in the Century Design

FEWER OPERATING PARTS	LESS WEAR	LONGER LIFE
IMPROVED TRAP AND GATE	LESS FILM TENSION	LESS FILM MUTILATION
SIMPLIFIED INTERMITTENT	EFFICIENT OPERATION	FEWER REPLACEMENTS
FEWER GEAR CONTACTS	LESS TRAVEL GHOST	BETTER DEFINITION
HEAVIER PARTS	QUIETER OPERATION	STEADIER PROJECTION
DOUBLE SHUTTERS	CLEARER PICTURES	LESS EYE STRAIN
REAR SHUTTERS	LESS APERTURE HEAT	GREATER SAFETY
BALL-BEARINGS (SEALED FOR LIFE)	LESS POWER CONSUMPTION	LOWER OPERATING COSTS
IMPROVED SHUTTER	MORE LIGHT	ECONOMICAL OPERATION
UNIT CONSTRUCTION	SIMPLIFIED REPAIRING	CHEAPER MAINTENANCE

A Century Projector mechanism installed in your theatre, is an investment . . . which pays dividends. It will increase your profits by lowering repair and replacement-parts costs in a substantial amount.

Century manufactures a complete line of Bases, Magazines and Replacement Parts for Century and Standard Simplex-Type mechanisms.

Genuine Century Replacement Parts are the Standard of Perfection . . . Backed by Over 25 Years Manufacturing Experience

BUY CENTURY... *IT'S BETTER*

Distributed Thru Independent Theatre Supply Dealers . . . Exclusively

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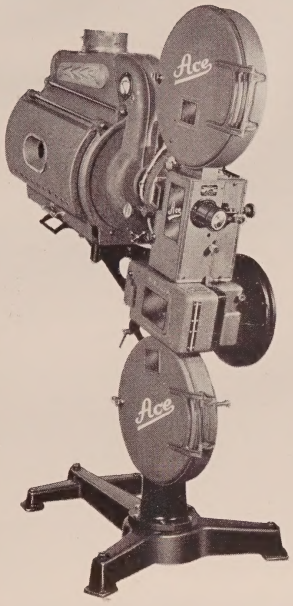
The Sound Projector of Preference



The Wenzel "ACE" PRO-4 Rear Shutter Projector Mechanism

and

WSR-2 Sound Head

Preferred by exhibitors and projectionists all over the world for their simplicity and economy of operation, and rugged dependability for year after year trouble-free performance.

Check these features of the Wenzel "ACE" PRO-4 Projector

- √ **Hardened and Ground Sprockets**
- √ **One-piece Rear Shutter Bracket**
- √ **Wear-resisting Slip-in Type Gate**
- √ **Double-bearing Movement**
- √ **Self-adjusting Gate Opening Device**
- √ **All Shafts Hardened and Ground**

Protect your projector equipment investment by selecting equipment having more than one source of supply for future replacement parts.

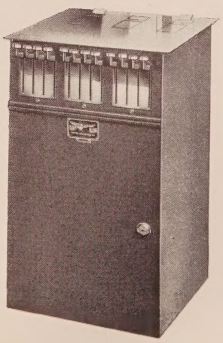
Ask Your Independent Theatre Supply Dealer!

The Wenzel "ACE" WSR-2 Sound Head

SEMI-STEEL CENTER FRAME ruggedly and precisely constructed, with extremely long-bearing surfaces, assures absolute alignment and vibrationless performance.
COMPLETELY BALL-BEARING: Every shaft operating in ball bearing for smooth, quiet operation.
HARDENED and GROUND SHAFTS: All shafts are HARDENED and GROUND to insure long wear.
SINGLE SHOT OIL SYSTEM: Positive assurance that all moving parts will secure proper lubrication.
LATERAL GUIDE ROLLER permitting extremely fine adjustment for all sound track limits.
STABILIZER: Rotated by film and controlled by dynamically balanced fly wheel eliminates all "wowing" and "flutter". Sound track floats free of stabilizer drum at the scanning point thus eliminating any "flutter" or "ripple" from defective sprocket holes or irregularities in the film.
CONSTANT SPEED SPROCKET driven by an extraordinarily heavy V-belt fly wheel, assures positive constant speed of film at the scanning point.
OPTICAL SYSTEM: Finest precise OPTICAL LENS obtainable. HOODED for protection against foreign matter and mounted with micrometer adjustability.
EXCITER LAMP: So designed that any adjustment required can be obtained without the use of tools and burning of fingers.
OPERATION: Simplicity of design, with exceptional interior space, allows plenty of finger room for threading and adjustments.

The Wenzel "ACE" Hand Operated Ticket Register

Modernize your box office and checking methods with this ultra modern ticket register. For efficiency and positive accurate dispensing of tickets, economically, there is no finer ticket register manufactured than the Wenzel "ACE" Ticket Register. Produced with precision workmanship and quality materials, the Wenzel "ACE" Ticket Register, designed with sturdy simplicity, assures the user of long trouble-free performance.



WRITE FOR COMPLETELY DESCRIPTIVE LITERATURE

One of the world's largest manufacturers of replacement parts for standard theatre projectors

WENZEL PROJECTOR COMPANY

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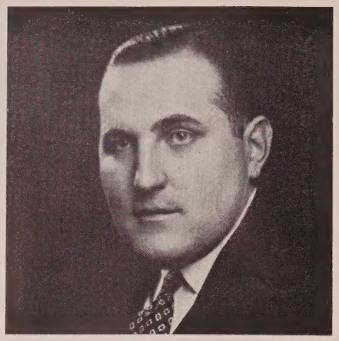
WENZEL PROJECTOR CO.

states this is compulsory. The walls of the room must be fire-proof, with metal access doors and two main metal doors on opposite sides of the projection room. Two port-holes should be provided for each projector, one for projection and the other for viewing the screen. If a spot-light is included in the equipment, a port somewhat larger than the projection port should be provided, as well as another observation port of the same size as the projector observation port in the rewind room. Over these various port-holes, approved metal fireshutters must be installed and so arranged by a master trip system that the shutters will drop and cover the openings in case of fire, automatically, by the melting of fusible links, or manually, by the projectionist. For exhausting the hot, stale air from the various rooms, a mechanical blower with a metal duct system and grille-taps into the room should be installed. The blower may be controlled electrically by a snap-switch and by a special switch connected to the master trip arrangement on the fire-shutter apparatus, which will automatically turn on the blower in case of fire. Another blower with a metal duct system and taps into the arc lamp houses should be provided for exhausting the heat, gas, and ash of the arc. This blower should also be mechanically electrically controlled, and of sufficient capacity to exhaust the arc lamp house properly, and yet not affect the burning of the arc.

FOR SOUND-PROOFING the projection room or for cutting down noise transmission to a minimum, a good practice is to use cement plaster up to a height of five feet from the floor, all around the room, and above this height acoustone D or other approved material of equal acoustical properties. The port-holes in the projection room may be sound-proofed by glass in a separate track over the shutters or by installing acoustical baffles inside the openings. If glass is used in the projection ports, it should be special "optical" glass.



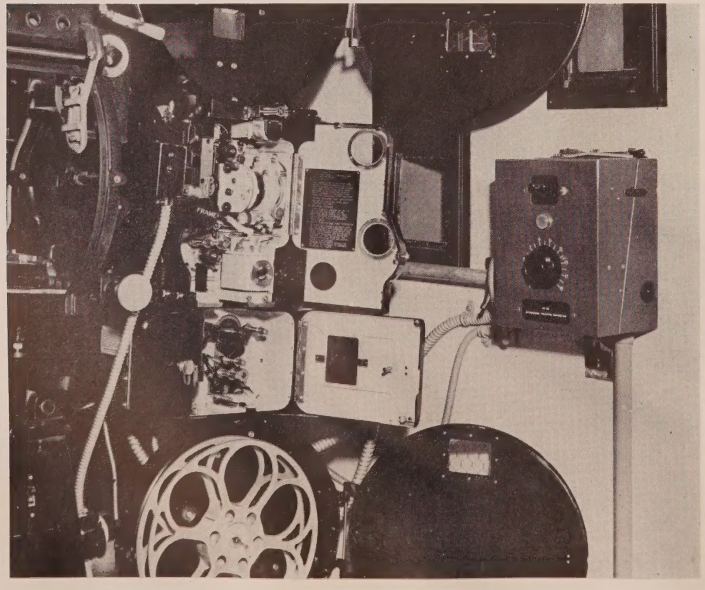
A graduate of Penn State College, later taking courses in architectural and mechanical drafting at Columbia University, and in radio, sound, and electricity, John J. Sefing is an engineer with long experience in many departments of the physical theatre. He first entered the automotive field as specifications draftsman, but soon transferred to the theatre business. For the past 13 years, he has been handling construction and remodeling, projection and sound layouts, specification writing and estimating, and trouble-shooting concerning all types of theatre equipment.

The projection room floor should be coated with a good grade of paint to stand the wear and tear and the penetration of oil or, better, it should be covered with a good grade of "battleship" linoleum. A popular color scheme is olive green on the floor and walls, up to a height of five feet all around the room, and buff or gray on the upper walls and ceiling. The complete fire-shutter apparatus should be painted a flat green color instead of the former black enamel finish.

The projection room proper should be so planned that the horizontal center-line of the auditorium and screen is midway between the two projector lenses, which latter should be five feet apart. If the projection room is located an appreciable distance off this screen and auditorium center-line, due to disadvantageous structural conditions, a definite and noticeable "keystone" will result on the screen. The edge of the screen image farther from the lens will be longer than the opposite edge, and so the screen picture will not be rectangular. The "keystone" effect will likewise occur if the projector lenses are too high above the center of the screen, necessitating a steep projection angle. There are two ways to help overcome the "keystone" effect; one is to use dark, heavy velour masking around the picture to absorb light falling upon the screen outside the required rectangular area, and the other is to file a blank aperture plate to the proper dimensions required for a rectangular screen picture. This method is quite critical, as the filing must be quite precise.

A SAFE WORKING AREA around the projector and other equipment in the projection room can not be stressed too strongly. At least 30 inches of clear space should be provided at the sides and rear of each piece of equipment in the projection room. The projection room, rewind room, and generator room must be constructed of substantial, approved, fire-proof materials. In all cases before proceeding with the construction, approval of the design should be obtained from the local, state, or city authorities having jurisdiction. This will avoid any costly revisions or penalties after the work is done.

The architect, engineer, or even the theatre owner can obtain reliable, up-to-date information from the Society of Motion Picture Engineers' specifications on projection room planning, prepared by the Projection Practice Committee, which provides all the important and desirable dimensions.



★

A FINAL BOW TO THE NOW DEAD

Low Intensity Arc Lamps

A summary of their basic history as it relates to contemporary improvements, and the reasons which led to its obsolescence.

by Arthur J. Hatch, Jr.

ACT I

Scene 1. In The Home

Enter the Gas Era

It was shortly after the turn of the century, while I was still in knee-breeches, that my father had our house piped for gas lights. We were one of the first in the neighborhood to have this marvelous illumination.

All our friends came in to see the dazzling brilliancy of these new lights, and to compare them to the oil lamps which had hung in the fancy glass chandeliers from the ceiling of the living and dining rooms.

They marveled at this, truly the last word in illumination. Nobody hoped for anything better or brighter. This marked the end of oil refilling, wick trimming and chimney cleaning.

ACT I

Scene II. In The Theatre

Exit the "bread box"

It was in 1925 that low intensity projection arc lamps played the same sort of trick on the old type vertical arcs that gas lights had played on oil lamps for home illumination a quarter of a century earlier.

Theatre operators were amazed by this new wonder of projection lighting. The efficiency was such that every theatre installed it as fast as they could get delivery. And why not? Enough was saved on current and carbons to pay for them in less than a year.

The increased brilliancy was such that this low intensity lamp could completely blank out a screen on which was projected a picture with the old "bread box" vertical arc. It marked the end of the old 3/4" carbon. Carbons for the new lamp looked like lead pencils by comparison. They pulled but 15 to 20 amperes as against the 75 necessary to the vertical arc. The old 10 H. P. generator was no longer necessary. Now only two H.P. were required. It marked the end of hand carbon feeding. These new lamps had a motor control system which advanced the carbons as they were consumed. It even marked one of the first attempts at "streamlining" equipment. It marked the end of the necessity of making adjustments every 60 seconds. Since the carbons were now on a horizontal plane instead of vertical, the operator no longed needed to "fight the arc" in order to keep the screen well and evenly illuminated.

This truly was the brightest and most efficient light that man would ever develop.

ACT II

Scene I. In The Home

Edison's Triumph.

It was not so many years ago that man got a new marvel to make servant in many ways. It was electricity that dealt the blow this time. At the touch of a button, rooms in the homes of even the less fortunate people were flooded with light, and at so little cost. Here was five times the brilliancy of the once wonderful gas light. It marked the end of the dangers of gas leaks and constant mantle replacement.

Here was a new perfection, perhaps the greatest and last of all improvements that would be made in illumination.

ACT II

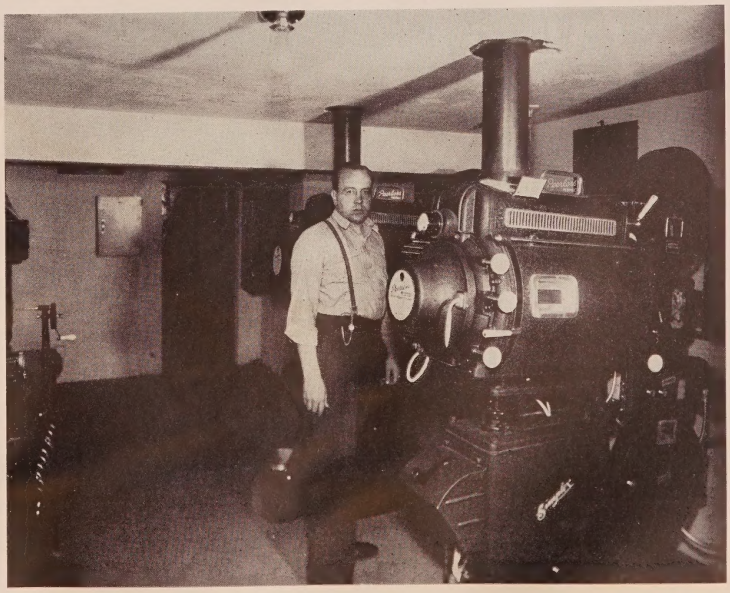
Scene II. In The Theatre

Will Marvels Never Cease?

No less astonishing than the development of the electric light was the first demonstration of the high intensity projection arc. Here was a boundless source of illumination, more than was possible to use in the theatres of the day. So was ushered in the colossal picture palaces of the fabulous late 20's. Million dollar cinema cathedrals seating several thousand were now practical. In such establishments, the new light source was very efficient.

While the smaller theatres could hardly afford these high intensity moguls, for they would be paying for much light that would be wasted, projection engineers knew that the days of the low intensity lamp were numbered even in the smaller houses. It was simply a matter of development of an arc which could efficiently deliver this new kind of light in just enough volume.

So here again was a new light which made its predecessors look weak. Just as the low intensity had blanked out the picture projected by the vertical arc, the high intensity made the low intensity appear a dim, muddy yellow. Nothing less than high intensity projection could now be considered acceptable by any theatre.



ROOM TO WORK and efficient placement of modern equipment that is carefully maintained, guarantee a good show at the SHARD THEATRE, LOCKLAND, OHIO. Architect Charles B. Levenson, owner Harris Brothers, lessee Ralph Kinsler, the operator here pictured, and dealer National Theatre Supply are commended for the part they played in this modern booth.

FOREST "Balanced

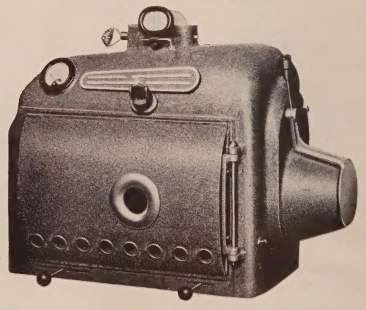
LAMPS •

One KW LAMPS

Forest 'One Kilowatt' Lamps are two purpose lamps. Although rated for 'One Kilowatt' projection, they can be operated at Low Intensity. Or, due to the reserve power feature can be operated above their rated capacity . . . by merely changing the type of carbon and by adjusting the feed control. The Forest 'One Kilowatt' Lamps permit the owner of a small house to project a picture comparable in quality to that of a theatre 10 times its size.

The Forest 'One Kilowatt' Lamps are streamlined and cleanly built. They feature an ARC CONTROL, especially designed to readily change the feeding speed of both carbons . . . this accomplished through the use of the Double Feed Screw. All controls are within easy reach. Fits all projector bases. All lamps are equipped with: (1) large 10¼" mirror, to give maximum light. (2) ammeter. (3) 'arc-a-scope', gives perfect image of arc and is visible from both sides. (4) electro-magnetic arc stabilizer.

Competition cannot match Forest Arc-Light Products for quality, workmanship or progressiveness, yet, Forest does match competition in PRICE. Forest Products give you "more for your money" . . . they have flexibility and reserve power. They are a better buy and actually save you dollars and cents over your present non-flexible, amperage-fixed arc-light system.



LD-40 RECTIFIER

—The 'One KW' Companion Product—

LD-40 is a bulb-type rectifier. Technically, it meets the high standards in design and manufacture under which all Forest Products are made. It is flexible and has reserve power. It is housed in the same sturdy, all steel case as is the LD-60.

RECTIFYING TUBES Forest Rectifying Tubes are manufactured for use in rectifiers, power supply units and battery chargers of all makes. When used in Forest Rectifiers they are your guarantee of maximum efficiency, reliability of operation and maximum economy.

FOREST MANUFACTU

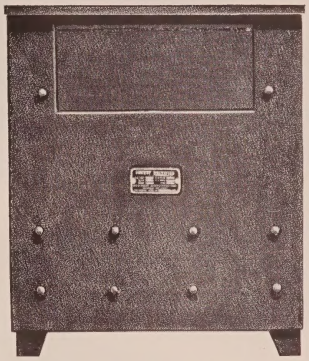
200 MT. PLEASANT AVENUE

FOREST MFG. CO.

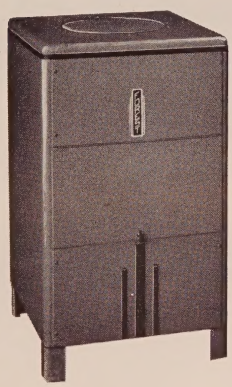
arc-light" PRODUCTS

RECTIFIERS • SCREENS

Super MCS RECTIFIERS



Forest Super Magnesium-Copper Sulphide Rectifiers with the newly developed Forest transformer, designed and engineered in our laboratories, give definite assurance of protection from line voltage fluctuations. The Super MCS has—reliable 3 phase fan . . . magnetic switches . . . visual 3 phase line indicator . . . automatic voltage regulator . . . housed in a new sturdily built modernistic case—all distinct Forest features. Approved by Underwriters Laboratories. Consult our authorized dealer and obtain the specially prepared brochure giving complete technical data on Forest Super MCS Rectifiers.

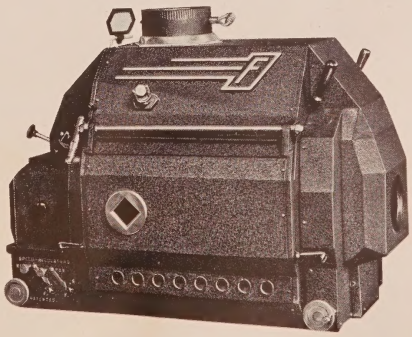


LD-60 BULB-TYPE RECTIFIERS

LD-60 Bulb-Type Rectifiers have been developed to meet the demand for a reliable, efficient, low cost power conversion device, to supply projection arcs. Important new circuits have been developed and Forest rectifiers conform in every way to the standards required for modern projection. Each rectifier serves one lamp and has an output from 30 to 60 amperes for Simplified High Intensity operation. This rectifier, with the Forest Lamp, meets the demand of the smaller theatre where an inexpensive source of white light is required.

"UNIVERSAL TRIM" LAMPS

This improved projection lamp, developed by Forest, was designed to overcome the technical imperfections in present projection lamps. In the Forest Projection Lamp is featured: an entirely new carbon feed which maintains perfect focus. Does not require the operator's constant attention. . . . Takes any type of carbon trim—5 to 9mm. negative, 6 to 13mm. positive—thus accommodating trims for Suprex or Simplified High Intensity, Low Intensity and all new requirements. . . . Adjustable magnetic arc control permitting greater draught and removal of burnt gases. . . . Full adjustments provided for reflector, carbon guides and holders, independent separate control of positive and negative carbon feeds. . . . Lamp mechanism placed where it cannot be clogged by falling particles of carbon and to ease cleaning. Many other distinctive features are incorporated into the Forest Projection Lamp. These features are discussed in detail in a specially prepared brochure.

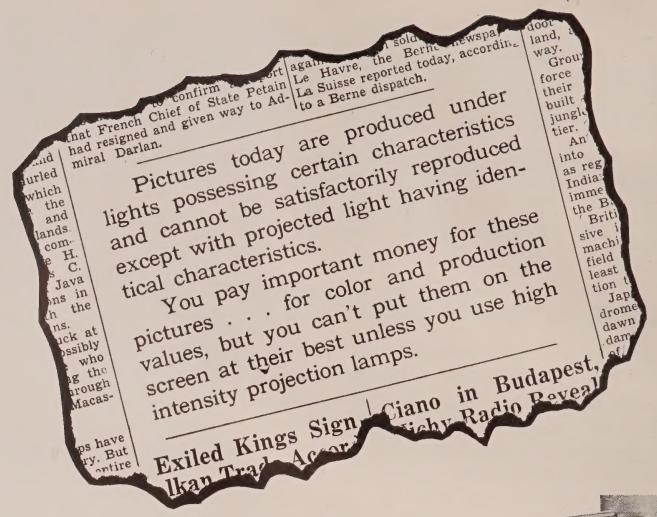


SOUND SCREENS . . . designed and manufactured to retain their original surface over a longer period of time. The special Forest Surface-Processing Method eliminates the necessity of increasing amperage at the arc to obtain increased light on the screen. There is a complete line of Forest Sound Screens . . . they are all flame-proofed.

RING CORPORATION

NEWARK, NEW JERSEY

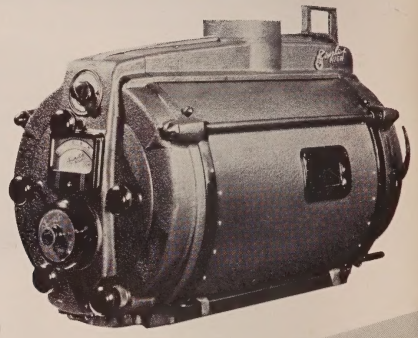
FOREST MFG. CO.



Pictures today are produced under lights possessing certain characteristics and cannot be satisfactorily reproduced except with projected light having identical characteristics.

You pay important money for these pictures . . . for color and production values, but you can't put them on the screen at their best unless you use high intensity projection lamps.

Exiled Kings Sign | Ciano in Budapest,



The Simplex High

ONE-KILOWATT PROJECTION ARC LAMP

● Here is a low cost, high intensity, direct current projection arc designed especially for moderate sized theatres, with screens up to 18 feet in width. If you have hesitated to change over from the dim yellow light of low intensity because the operating, if not the original cost of earlier high intensities has been prohibitive, then the Simplex High is the lamp for you.

	LUMENS (Unit of light measurement) DELIVERED	OPERATING COST PER HOUR	LUMENS DELIVERED PER HOUR FOR 1c	HOURLY COST 1000 LUMENS	COLOR CHARACTER OF LIGHT
SIMPLEX HIGH ONE-KILOWATT ARC LAMP	2000	15¢	133	7½¢	SPARKLING SNOW-WHITE (Necessary to satisfactory projection of Technicolor)
YOUR LOW INTENSITY ARC LAMP	1000	13¢	77	13¢	MUDDY YELLOW

Although overall operating costs for the Simplex High are only slightly higher, this remarkable lamp projects twice as much light as the low intensity. The Simplex High is designed especially to double the light volume because the density of today's films demands it.

What's more, the Simplex High produces the brilliant, sparkling, snow-white light so necessary for the projection of Technicolor.

● It's easy to find out how you can improve your box office receipts with this better projection light that costs so little for what it delivers. Write or phone for literature, or ask for a free demonstration of the Simplex High in your own theatre . . . then see proof of the difference. There's no obligation. Thousands of exhibitors know that the name Simplex High guarantees the best in projection light.

Distributed by

NATIONAL THEATRE SUPPLY COMPANY

THERE'S A BRANCH NEAR YOU

I'm here TO IMPROVE YOUR PROJECTION

STRONG ELECTRIC CO.

THE STRONG ONE-KILOWATT UTILITY

THE PICTURE ON YOUR SCREEN IS THE ONLY THING YOU HAVE TO SELL!

To secure the desired screen brilliancy, to bring out the real photographic and production values, with present dense black and white films, TWICE AS MUCH LIGHT IS REQUIRED as is possible to project by any low intensity lamp.

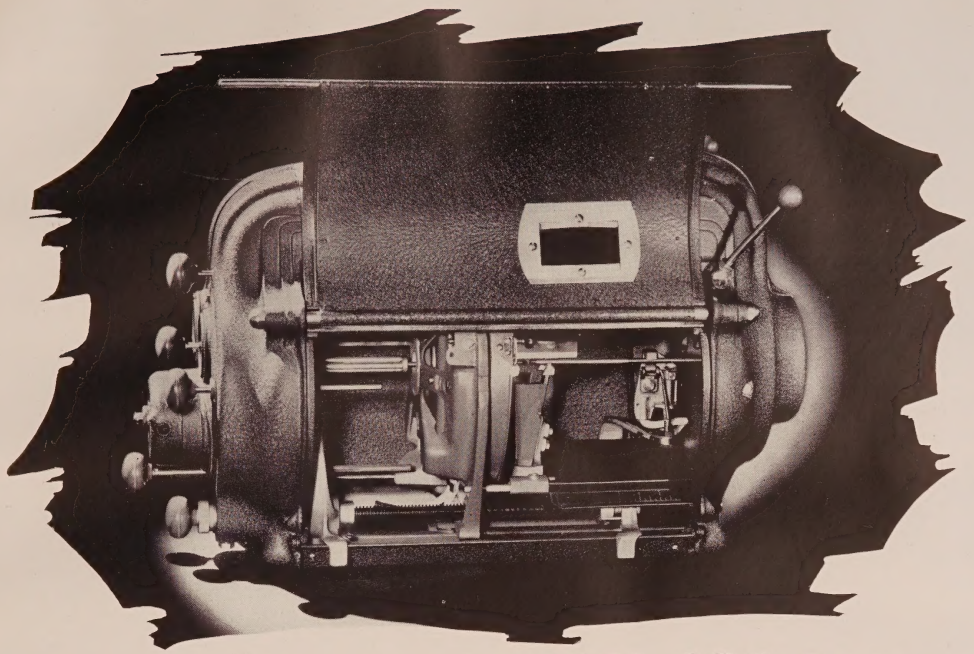
Furthermore, the light of your low intensity lamps is too dim and of the wrong color for satisfactory projection of Technicolor pictures. With your low intensities you are paying a premium for expensively produced films without being able to properly exhibit them.

The *Strong One-Kilowatt Utility* makes possible this necessary doubling in light volume and delivers the snow-white light so necessary to the satisfactory projection of colored pictures. The light of your low intensities is a dim, muddy yellow by comparison.

If you are still using old-style low intensity

The **RELIABLE GUIDE** *to* **BETTER PROJECTION**

OWN THE FINEST . . IT COSTS NO MORE



AUTOMATIC PROJECTION ARC LAMP

projection because you believe it is the most economical, you may be astonished to learn that in reality you are extravagant, for low intensity projection doesn't save current—it wastes it! You're paying for deluxe projection without getting it.

BOXOFFICE LINES FORM ONLY AT THEATRES WITH DELUXE PROJECTION

Theatregoers today recognize good projection . . . and go where it is offered. You can no longer hope to get along without it. What high intensity projection has done for the boxoffice of other theatres it can do for yours. Today it is highly important that the equipment you buy possesses the ability to deliver long, uninterrupted service. The correct design, engineering skill, and careful manufacture, such as demanded by Strong, are your best assurance of such faithful, trouble-free performance.

Strong lamps are completely manufactured within the Strong factory, where every step in production can be rigidly controlled to comply with the high standard set by Strong.

Learn more about the fundamental advantages available only in Strong Lamps. It is our earnest desire that every exhibitor have a demonstration in his own theatre to prove to his own satisfaction all that is claimed for them. For complete details and demonstration write your Independent Theatre Supply Dealer. No obligation.

THE STRONG ELECTRIC CORPORATION
2501 Lagrange Street
Toledo, Ohio
– Export Office –
90 Gold St. • New York City

IN BUYING STRONG YOU BUY THE FINEST

ACT III

Old Loves Scorned

Now, all of these types of illumination, the oil lamp, the gas light, the vertical arc, and the low intensity lamp are in reality as bright today as they were when we first looked at them with awe. We marveled at their brilliance then because they were the brightest lights seen up to that time, but now that we have become accustomed to the newer developments we will have no part of the old.

Theatre patrons, too, have become accustomed to brighter pictures, and no longer find acceptable the light of the outmoded low intensity. They've been in the larger theatres where high intensity projection is employed, and the mere fact that a theatre is small is no excuse for anything less satisfactory.

ACT IV

Loosening Old Bonds

But increased brilliancy alone is not responsible for the discarding of previous types of lighting. Greater flexibility of application and the opening of new horizons in power jointly contributed to the development and improvement of many associated materials and equipments.

The introduction of the electric light made outdoor illumination possible in ways which gas never could have accomplished. It could also be used in many places where open flame was an extreme hazard.

So too, the increased brilliancy in projection lighting made possible the increase in screen sizes by as much as four times. And once the large screen became the vogue, the low intensity lamp more than ever was ruled out as being impractical.

Arthur J. Hatch, Jr., an electrical engineer, has been with the Strong Electric Corporation six years. He is one of the engineers of the Strong Electric Corporation who is responsible for the development of the one-kilowatt lamp. Born in Toledo, O., he received his engineering degree at the University of Toledo, and came to the Strong Electric Corporation from the American Telephone and Telegraph Company.

Then the producers were quick to take advantage of the increased screen brilliancy to produce films of greater definition. This resulted in unusually dense films being the rule rather than the exception for, after all, the producers had an eye to the possibilities which prevailed in the nation's largest theatres, where high intensity projection likewise was the rule, and where sufficient light was available to penetrate the darker prints.

This, in itself, practically forced many houses to turn to the high intensity arc, as the old low intensity was totally inadequate to handle the new films satisfactorily.

Another blow to the low intensity lamp came with the influx of Technicolor pictures, for here was a development which made it impossible to render satisfaction without the high intensity arc.

Since all colored films are produced under lights having certain properties which are identical with the characteristics of the light projected by the high intensity arc, correct color rendition is impossible with any other light source. An example of the distortion which results from the use of low intensity arcs in connection with the showing of colored films is to be had in the fact that the low intensity lamp projects a light of yellow tinge which imparts a green cast to skies which are supposed to be blue, turns snow from white to yellow, and transforms red Santa Clauses to orange.

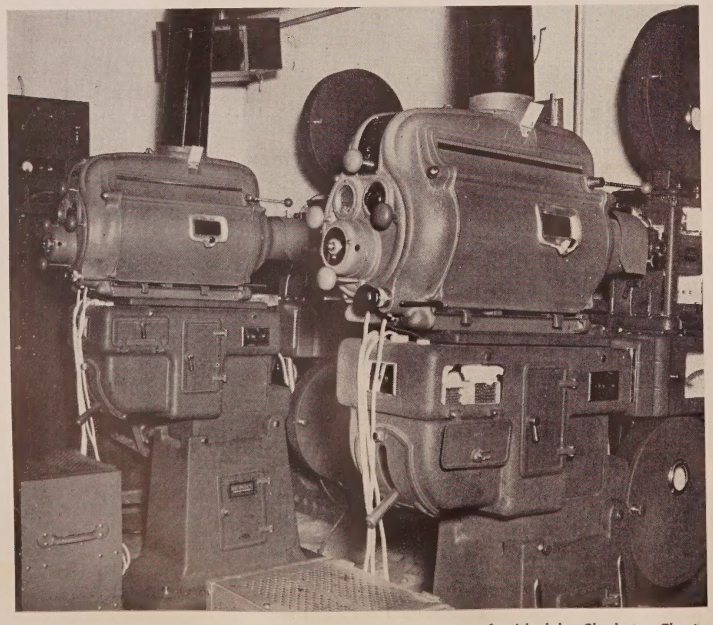
ACT V

Eureka!

When high intensity arcs were first developed, the lamps were produced in large capacity units only, and were economical only when used in large theatres, despite the surprising fact that the tremendous volume of projected light actually cost less per lumen than the light from the low intensity.

Within the last two years, however, a new high intensity lamp of intermediate capacity, the one-kilowatt, has been developed especially for moderate and small sized theatres, with screens up to 18 feet in width, where the operating cost of the earlier high intensities would have been prohibitive. These lamps deliver the same type of light as the big lamps but in lesser volume, about twice that of the low intensity, as required by smaller theatres. They are low in original cost, and the combined current and carbon cost is hardly more than with the low intensity lamp. This lamp is designed to burn a 7-6 copper coated high intensity trim of carbons at such low current density that a carbon trim in each lamp will burn more than two hours, which is sufficient to project six of the new standard sized reels of film. The small amount of power consumed by this arc generates so little heat that a simple burner mechanism and a small lamphouse are permitted, making possible a popular priced lamp and rectifier equipment.

Thousands of theatres installed these new lamps as soon as they were introduced, and it is predicted that all low intensities will be replaced as soon as manufacturers are in a position to make delivery.



ONE KILOWATT Strong Utility projection lamps and rectifiers were furnished by Charleston Theatre Supply of Charleston, W. Va. to the Wilson Theatre, Miami, W. Va. and installed by Altec. Dave Wilson is the owner

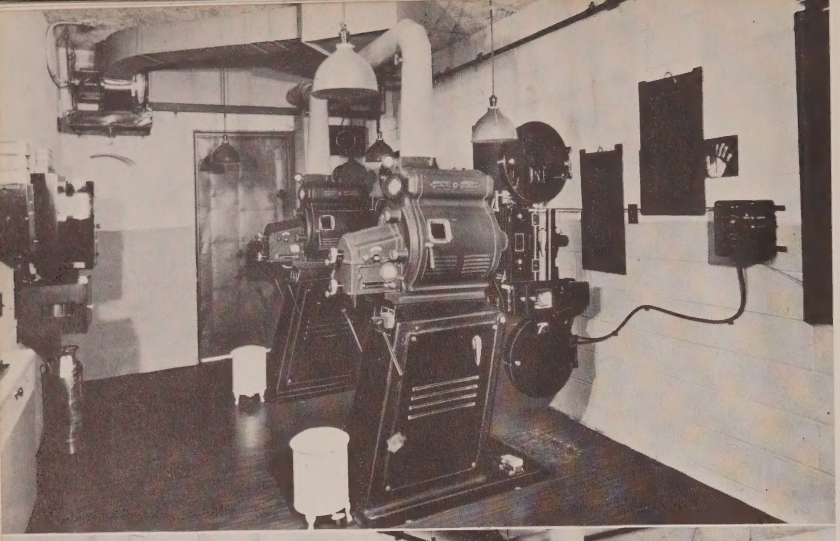
CATALOGING THE NEW IN PROJECTION BOOTHS ★

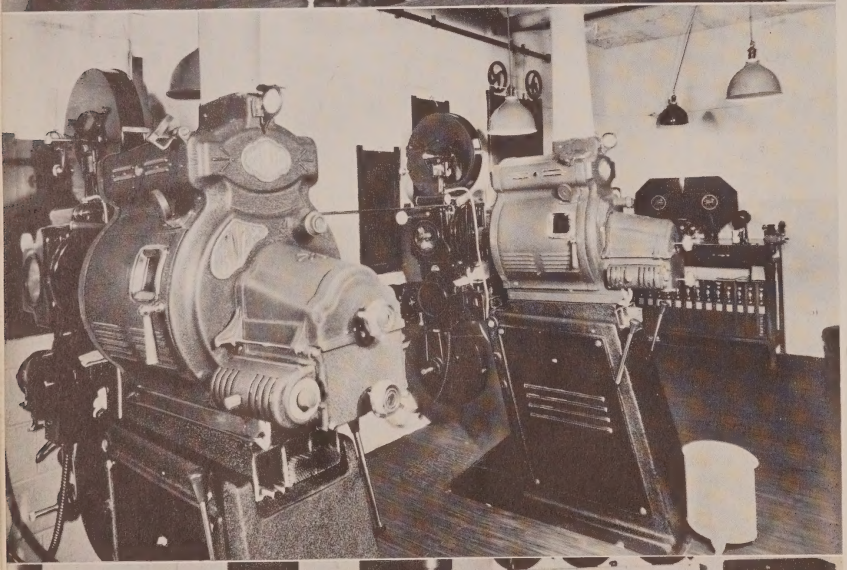
A SUMMARY OF

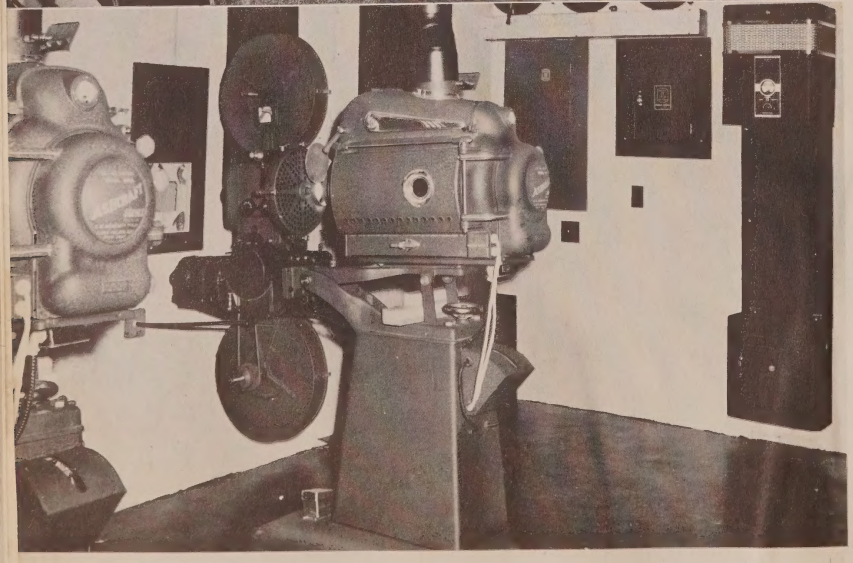
Modern Booths

RECENTLY EQUIPPED

THE SOUTH AMERICAN WAY. In the new Metro Copacabana Theatre in Rio de Janeiro, Brazil, the equipment is some of the most powerful known to the theatre industry. Huge PEERLESS Hi-Candescent LAMPS on SIMPLEX E-7 PROJECTORS and SUPER-SIMPLEX bases form an impressive battery. The third projector is an all too infrequently installed spare in the event of emergency. Many theatre owners may regret their failure to keep such a spare available.

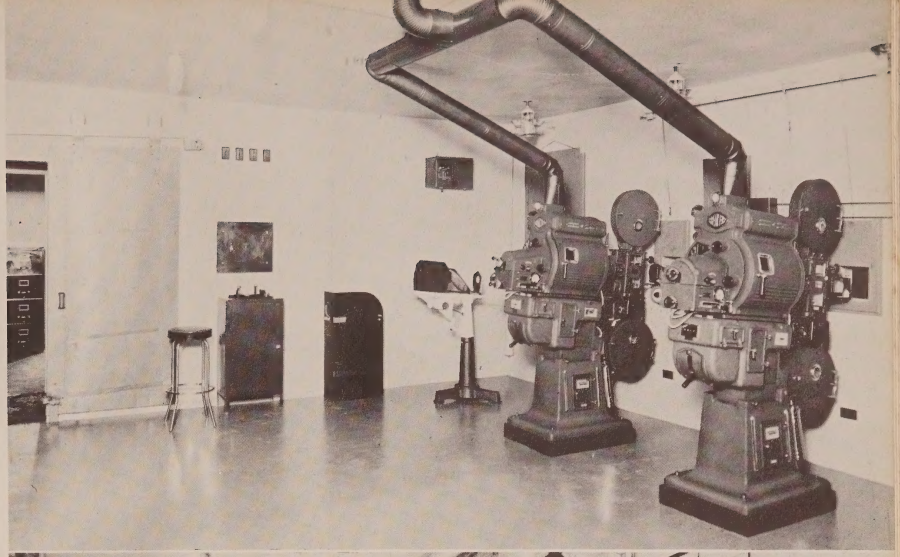




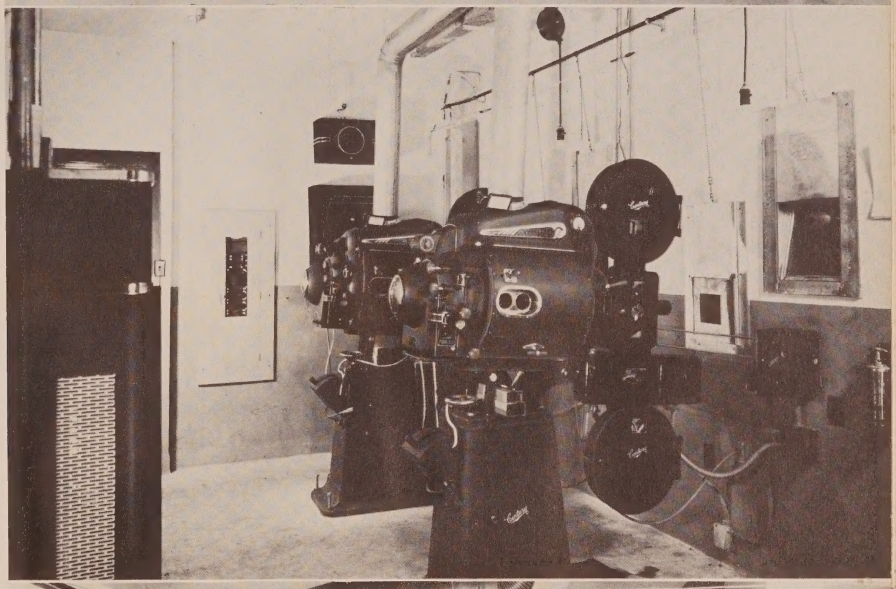


THE VAN DYKE THEATRE, Van Dyke, Michigan. Shown are two views of the projection booth which was equipped by "Ernie" Forbes Theatre Supply Company. Equipment includes: BRENKERT PROJECTORS, BRENKERT MAGAZINES, BRENKERT BX 10 BASES, BRENKERT Enarc LAMPS, RCA Photophone SOUND and GOLDE REWINDS. The interior of the booth has sound absorbing cinder block for its construction.

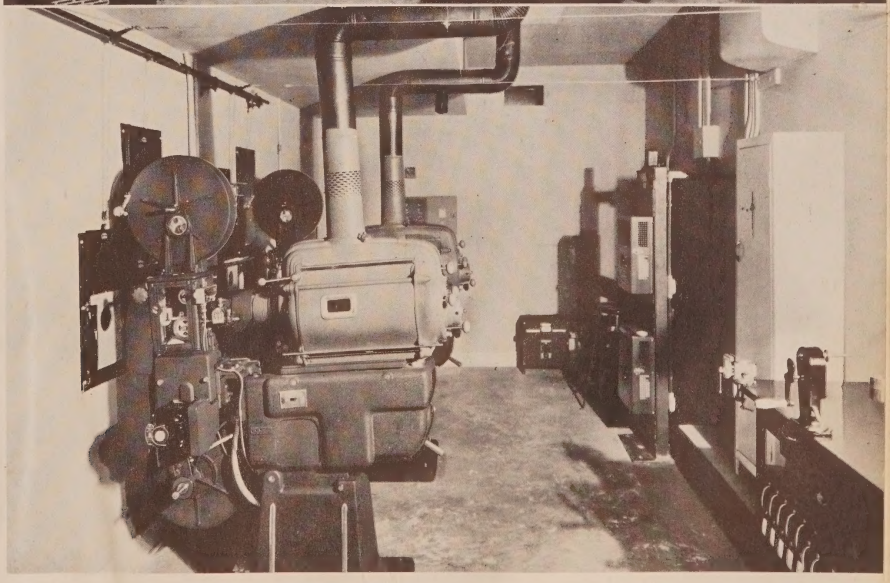
THE PLAZA THEATRE, Charlotte, North Carolina, operated by M. R. Marsh, is equipped with CENTURY PROJECTORS, CENTURY BASES, CENTURY MAGAZINES, ASHCRAFT LAMPS, RCA Photophone SOUND. Equipment was supplied and installed by Dixie Theatre Supply Company.



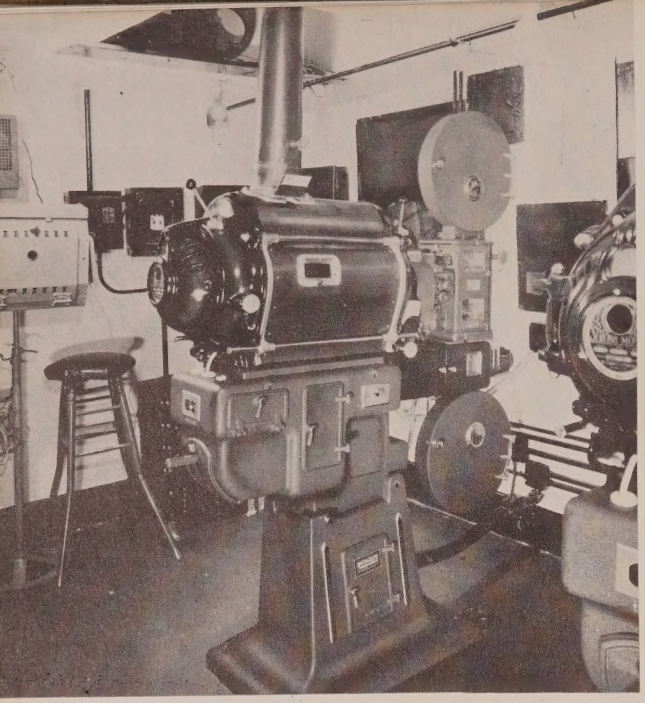
THE SAN MARCO THEATRE, Jacksonville, Florida was equipped by the Wil-Kin Theatre Supply, Inc., with MOTIOGRAPH (Model K) PROJECTORS, MOTIOGRAPH (Model K) BASES, MIRROPHONIC Deluxe SOUND, MOTIOGRAPH MAGAZINES, BRENKERT Enarc LAMPS, and a GOLDE STEREOPTICON.

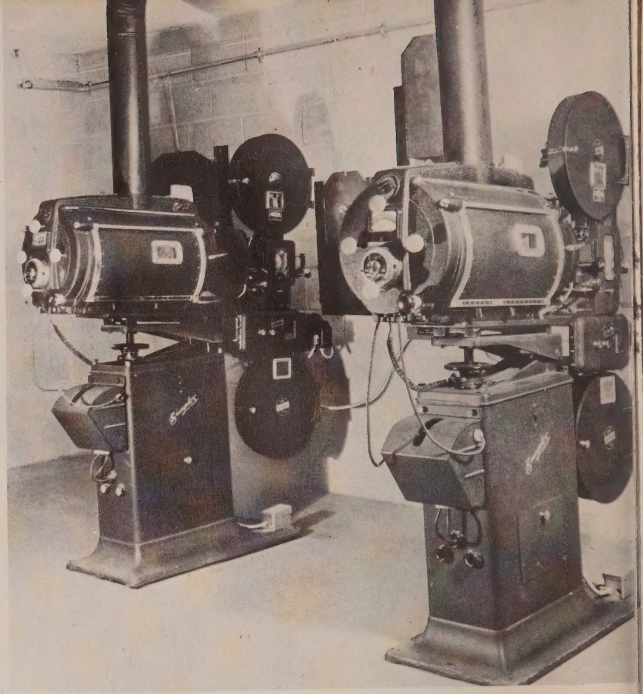


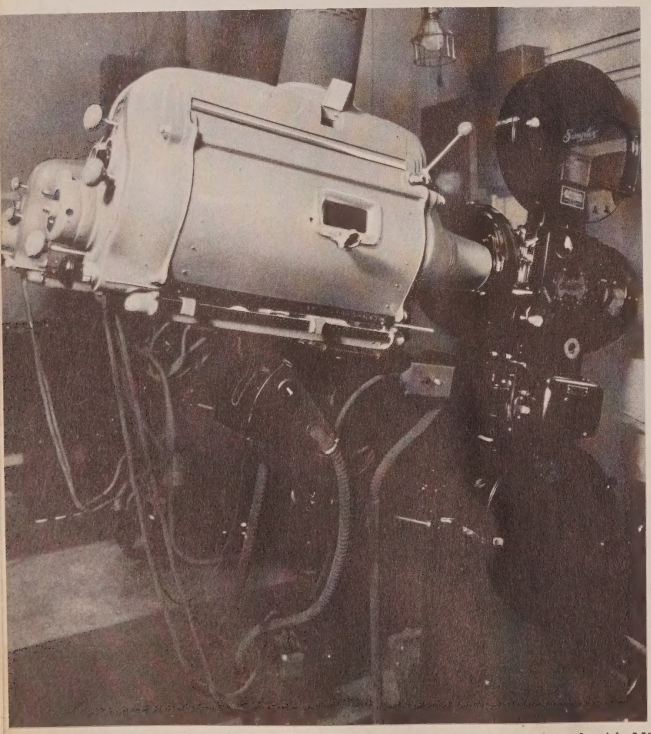
THE DAYTONA THEATRE Daytona Beach, Florida, has CENTURY PROJECTORS, CENTURY BASES, CENTURY MAGAZINES, ASHCRAFT LAMPS, RCA Photophone SOUND, and ROBIN IMPERIAL GENERATORS installed by Capitol Motion Picture Supply Co. of New York City.

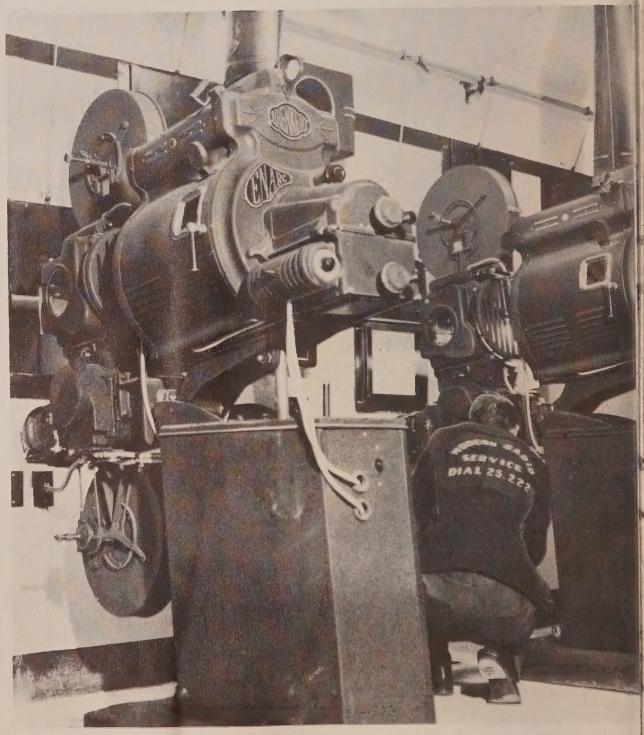


THE BARD THEATRE, Louisville, Kentucky was equipped by Falls City Theatre Equipment Company with MOTIOGRAPH (Model K) PROJECTORS, MOTIOGRAPH (Model K) BASES, MIRROPHONIC Deluxe SOUND, MOTIOGRAPH MAGAZINES, and STRONG Intermediate Hi LAMPS.







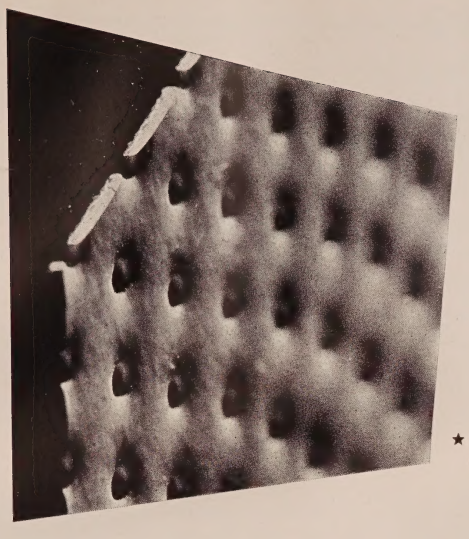


Top Left: **RIALTO THEATRE,** Alamosa, Colorado, equipped with MOTIOGRAPH (Model K) PROJECTORS, MOTIOGRAPH (Model K) BASES, MIRROPHONIC SOUND, STRONG Mogul LAMPS all supplied by Graham Brothers of Denver.

Top Right: **THE SHORES THEATRE,** St. Clair Shores, Michigan. National Theatre Supply Company equipped this house with Super SIMPLEX PROJECTORS, SIMPLEX 4-Star SOUND, SIMPLEX LL3 BASES, SIMPLEX MAGAZINES and SIMPLEX HIGH LAMPS.

Bottom Left: **THE CENTER THEATRE,** New Orleans, Louisiana, operated by Lazarus Theatres, Inc. was equipped with SIMPLEX E-7 PROJECTORS, SIMPLEX MAGAZINES, SIMPLEX BASES, STRONG Intermediate Hi LAMPS and SIMPLEX 4-Star SOUND.

Bottom Right: **WEST THEATRE,** Charleston, West Virginia, was equipped by Mid-West Theatre Supply Company with BRENKERT MECHANISMS, BRENKERT BASES, BRENKERT MAGAZINES, BRENKERT Enarc LAMPS, BENWOOD LINZE RECTIFIERS and RCA Photophone SOUND.



★ PHOTO ENLARGED PORTION OF THE WALKER PM SCREEN

WALKER PLASTIC MOLDED SCREEN . . .

striking scientific improvements in design and construction add new BRILLIANCE, DEPTH and REALISM to the projected picture. The kind of image Patrons enjoy and "Showmen" are proud of. Widespread acceptance by American and Foreign exhibitors, since its introduction in 1940, is proof of its practical qualities. The durable molded plastic surface gives a strong illusion of depth to enhance the sparkling realism of the picture. Walker PM Screen deserves your consideration to meet the public need for better entertainment.

WALKER-AMERICAN CORP.

PM—is molded of tough, durable plastic in a continuous surface without seams up to 22'-6" x 34'-0".

PM—sound transmission holes are molded in the shape of smooth flaring horns. The holes are not perforated.

PM—has a surface of tiny curves giving depth to the screen.

PM—plastic surface is hard and smooth which resists dirt and lends itself to quick effective cleaning.

PM—produces a strong illusion of depth in the picture.

PM—sharply reduces distortion from side seats, improves front seat viewing.

PM—provides clearer sound . . . better high frequency audibility.

PM—performance can be maintained at top efficiency for at least three years by cleaning with Walker P.M. chemical cleaner.

SERVING THE NATION
NATIONAL THEATRE SUPPLY COMPANY
SOLD • SERVICED • GUARANTEED

WALKER
P M
CHEMICAL
CLEANER

A specially developed cleaner that keeps your PM Screen in a brilliant condition. Application is extremely simple and effective.

WALKER
PLASTIC
PM
MOLDED
SCREEN

DISTRIBUTED by NATIONAL THEATRE SUPPLY COMPANY

The Projection Room

LOCATION AND NECESSARY CONTENTS

From the Symposium on Projection prepared for the Projection Practice Committee of the S.M.P.E., reprinted from their Journal.

by J. R. Prater

BEFORE SELECTING THE LOCATION for the projection room, let us consider the individual factors involved.

(1) Effect on Screen Image.—The primary purpose of the projection room is to provide a place from which the screen image can be projected to the best advantage. This requires that:

(a) The projection angle be kept as small as possible, both laterally and vertically. The depth of focus of the projection lens is taxed severely to maintain a sharply defined image over the entire screen area under working conditions. Add to this the buckling of the film at the projector aperture, plus any uneven wear of the aperture tracks and tension shoes, plus the unavoidable lateral projection angle imposed by the spacing necessary between projectors, and the best we can hope for in theatre practice falls considerably short of the ideal. Now if we add a vertical projection angle to the already difficult situation, the screen image definition suffers visibly with only a very small vertical angle. Long before the maximum approved limit of 15 degrees is reached, the screen image suffers visibly from distortion as well as from loss of definition. The added depth of focus of the longer E.F. lenses may hold the definition within tolerable limits, but the distortion is unavoidable.

(b) The projection distance should be such that a projection lens with an equivalent focus within normal limits will produce the desired size screen image. The lens must have a speed of f/2.0 to match that of modern arc lamp optical systems. Such projection lenses are available in focal lengths from two to five inches to fit existing projectors. Although f/2.0 lenses are also available in focal lengths of six, seven and eight inches, they are too large for standard projectors to accommodate. If longer than five-inch E.F. lenses are used with standard projectors, speed must be sacrificed, with resultant loss of light efficiency. On the other hand, fast lenses of extremely short E.F. have a lesser depth of focus, and the lateral spacing between projectors at the necessarily short projection distances imposes an undesirably heavy lateral projection angle. For example, a two-inch E.F. lense will form a screen image 20.5 feet wide at a projection distance of only 50 feet. At this short projection distance, with the recommended spacing of 60 inches between projectors, the lateral projection angle is approximately 2 1/2 degrees for each projector where two are used; five degrees for both outside projectors where three are used. Lateral angle is more serious than the same amount of vertical angle, because of the four to three proportion of the image width to its height. Also, it is impossible to cancel any of the lateral projection angle by tilting the screen. This brings our ideal projection distance to that which will give the desired picture size with an f/2.0 projection lense of five inch E.F.

(c) The lowest point of the light-beam projected to the screen must have a clearance of at least six feet four inches above any seating or traffic floor area to prevent interference with the picture. The highest point of the light-beam must be sufficiently below any ceiling obstruction to afford a clear view by the projectionist.

(2) Accessibility — The projection room should be easily accessible from outside the theatre without passing through the seating area or other public areas. Under no conditions should the projection room open directly into an audience area without double doors so arranged as to prevent any patron from seeing into the projection room at any time.

(3) Fire Hazard—To reduce the fire and audience panic hazard, and consequently the insurance rates, the projection room should be located outside the fire wall of the theatre or within a fire wall of its own.

(4) Heating and Ventilating—Provision must be made for a non-combustible vent duct of ample capacity leading to the open air; also for a fresh air in-take not connected with the main air-conditioning system. If unit heaters or steam radiators are placed directly in the projection room, they must be covered with wire mesh. A much more satisfactory plan is to place heating coils or radiators in the projection room supply ducts.

(5) Plumbing — Plumbing facilities must be extended to the projection room location, space being allowed immediately adjoining.

(6) Noise Isolation—The projection room noise and mechanical vibration must be kept from the audience area of the theatre. While it is possible to do so by employing massive construction and acoustical materials, regardless of the location, the task can be accomplished much less expensively if only the front wall of the projection room is directly exposed to the auditorium.

(7) Additional Space Immediately Adjoining—It is highly desirable that motor-generators, rheostats, rectifiers, and other apparatus necessary to projection, as well as supplies, spare parts, test equipment, tools used only occasionally, and clothes lockers be located as conveniently as possible to the projection room without being placed directly therein.

CONSIDERING ALL THESE FACTORS, it is obvious that the location of the projection room will necessarily be a compromise in many respects. In making the compromise, it is well to remember that the screen image is what the theatre has to sell. The requirements for excellent projection should come first and foremost, even at an added initial cost.

The contents of any projection room should be limited strictly to what is necessary for carrying on the performance with safety, dependability, and excellence. The following should be within the projection room proper:

(1) Fire-proof shutters on all ports, with both automatic and manual controls as described in the SMPE approved plans (Also NBFU* Pamphlet 40, Sec. 191e.)

(2) A switch controlling the auditorium lights. Provision must be made also for turning these lights on from at least one other convenient point in the building. (NBFU, Sec. 191j.)

(3) Fire Extinguishers of types using water or water solutions, such as soda and acid, calcium chloride, pump tank, and loaded stream. (NBFU, Sec. 144.) It seems that there is room for argument on this point. Water extinguishers are dangerous to use on electrical equipment, besides being themselves a source of extensive damage to such equipment. Carbon tetrachloride or compressed carbon dioxide extinguishers would seem much more appropriate for location inside the projection room. If the water types must be provided, it is the author's opinion that they should be located just outside the projection room, and be used only after the projectionist is outside. If such procedure does not satisfy local fire authorities, however, it can not, of course, be followed. An interesting fact is that the NBFU does not recommend the use of fire extinguishers by the pro-

*National Board of Fire Underwriters.

RECT-O-LITE

MOTION PICTURE RECTIFIER

IMPROVED SUPREX RECTIFIERS
FOR BRILLIANT, FLICKERLESS PROJECTION

RECT-O-LITE RECTIFIERS project bright, clear, flickerless light on screen producing Brilliant Pictures. These rectifiers are dependable. They give you constant trouble-free service. No moving parts; nothing to get out of order; no servicing. No heat-producing rheostats. Simple construction; compact, and easy to install. They save enough current to pay for themselves

RECT-O-LITE – Model 45T

FOR INTERMEDIATE SUPREX ARC

7 M. M. Positive 6 M. M. Oratip Negative

or

STANDARD SUPREX ARC

7 M. M. Positive 6 M. M. Negative

DELIVERS 35 TO 50 AMPERES AT FROM 27 TO 32 D. C. VOLTS

45T, 230 Volt, 3 Phase

The model 45T Rect-O-Lite may be used for either the intermediate arc up to 45 amperes or for the standard Suprex arc up to 50 amperes. It uses four bulbs of the 15 ampere size providing a bulb capacity of 60 amperes and also has enough transformer capacity and adjustment to deliver up to 50 amperes at about 32 D. C. volts. A theatre buying these rectifiers for a 40 to 45 ampere intermediate arc may later use the same rectifiers for a standard 50 ampere Suprex arc by merely changing connections to two terminals in the rectifier.

Model 45A

FOR INTERMEDIATE SUPREX ARC

7 M. M. Positive 6 M. M. Oratip Negative

45A, 230 Volt, 1 Phase

The model 45A single phase Rect-O-Lite delivers from 35 to 45 amperes at from 27 to 32 D. C. volts. It has adequate capacity for the intermediate Suprex arc, even if this arc is burned at somewhat over the rated 40 amperes.

RECT-O-LITE – Model 60

FOR STANDARD SUPREX ARCS

7 M. M. Positive 6 M. M. Negative

and

8 M. M. Positive 6.5 M. M. Negative

60T, 230 Volt, 3 Phase 60A, 230 Volt, 1 Phase

DELIVERS FROM 35 to 60 AMPERES AT FROM 31 to 40 D.C. VOLTS

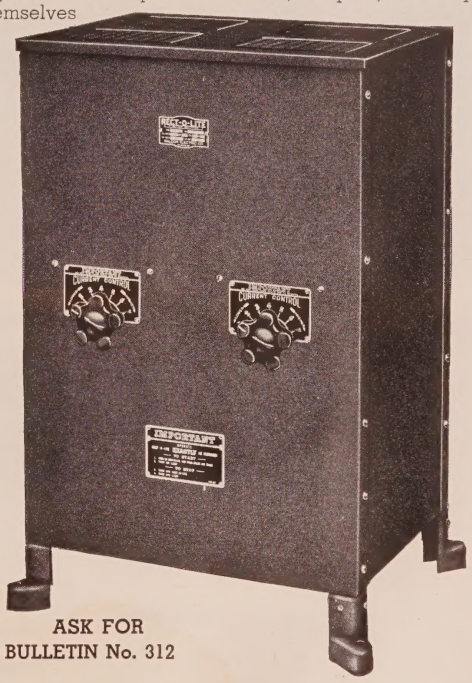
Model 60 also has terminals for low intensity arc—25 to 42 amperes at 50-55 D. C. volts.

RECT-O-LITE – Model 30

DELIVERS FROM 15 to 30 AMPERES AT 50-55 D. C. VOLTS

For Operating From 115 or 230-Volt 60 Cycles Single Phase Circuit. SPECIFY VOLTAGE WHEN ORDERING.

The new type 30A Rect-O-Lite has a two coil insulated transformer. This design completely insulates the lamp circuit from the line circuit, thus eliminating all danger of electric shocks. The current at the arc is regulated by means of choke coils in the A. C. side of the rectifier. This method provides rigid control of the amperage and voltage at the arc resulting in a stable arc. Also best tube life is obtained with this method of current control. The type 30A Rect-O-Lite is wound for single voltage to obtain peak efficiency. However, three input voltage terminals to provide for slight variation in line voltage, are furnished as standard construction. The 115 volt rectifier has terminals of 105, 115, and 125 volts, and the 230 volt unit has terminals of 210, 230, and 250 volts.



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Rect-O-Lite motion picture rectifiers are unconditionally guaranteed against any defect in workmanship or material for one year from the date of installation. Equipment proving defective within guarantee period will be repaired or replaced no charge, when reurned prepaid to the Baldor factory; or at the option of Baldor Electric Co. will be repaired, no charge, at the closest Baldor service station.

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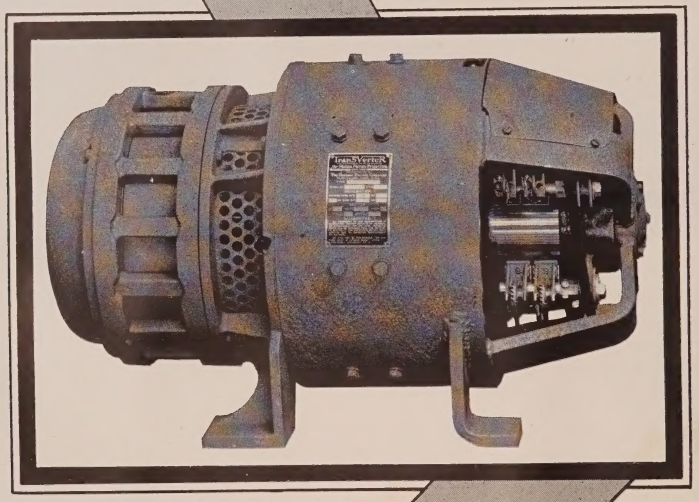

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THE HERTNER ELECTRIC COMPANY

Elmwood Avenue — Cleveland, Ohio, U. S. A.

jectionist at all. Section 218 NBFU Pamphlet 40, states: "Procedure in Case of Fire.—In the event of film fire in a projector or elsewhere in a projection or rewind room, the projectionist should immediately shut down the projection machine and arc lamps, operate the shutter release at the nearest point to him, turn on the auditorium lights, leave the projection room, and notify the manager of the theatre or building." If such procedure is followed, why should there be any hand extinguishers at all inside the projection room?

(4) Waste Receptacles—

(a) A suitable container for keeping scrap film under water, separate from waste paper and other rubbish. (NBFU, Sec. 183.)

(b) A metal container for hot carbon stubs. This should have a funnel-shaped cover with an opening only large enough to admit the largest diameter carbon used.

(c) If we adhere strictly to regulations, there would be no need for a receptacle for other waste material, because in Sec. 191f the NBFU states:

"No combustible material of any sort whatever shall be permitted or allowed to be within such enclosure (projection room), except the films used in the operation of the machine, and film cement." Such a condition would indeed be ideal from a fire-hazard standpoint, if it could be maintained; but in actual practice there will almost inevitably be waste material of various sorts to be disposed of. There are available on the market cans suitable for such material.

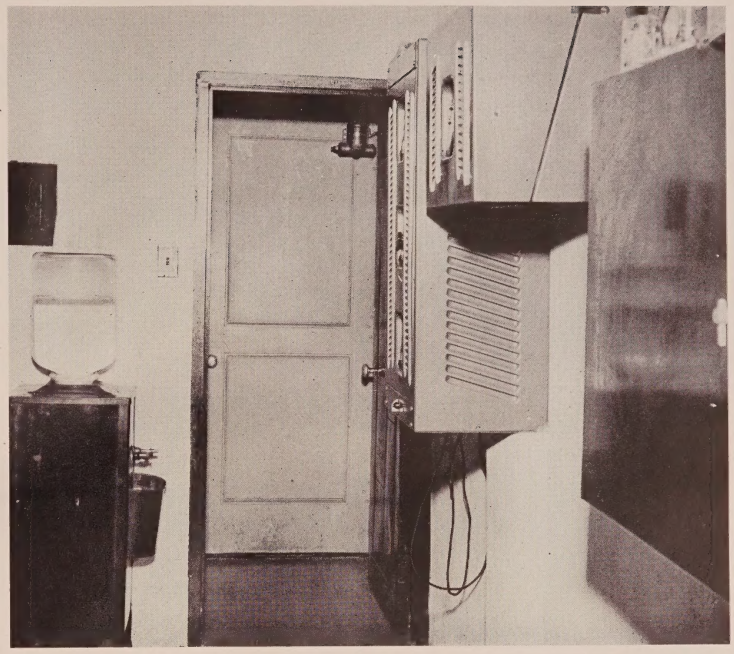
(5) A work-table or bench of metal or other non-combustible material, not provided with racks or shelves underneath, which might be used for keeping film or other materials. (NBFU, Sec. 117.)

(6) Such tools as are necessary for changing carbons and making minor adjustments or repairs during the performance. These should be permanently located as conveniently as possible to the place where they will be most frequently used.

(7) Two good flashlights. One may burn out when needed in a hurry, or may be in use in an adjoining room. An approved portable trouble-lamp with metal guard, such as a "Reel-Lite," is good for long repair jobs, but should never be used around machinery in operation, and should not take the place of the flashlights.

(8) Two or more projectors and arc lamps. Sound equipment including a double-channel amplifier, all of NBFU approved design and manufacture.

(9) An enclosed metal cabinet for supplies and spare parts most likely to be needed during a performance.



CONVENIENCES in the modern projection room are largely attributable to the recommendations of the Society of Motion Picture Engineers, which heeded the request of projectionists when the industry-at-large turned a deaf ear.

(10) All controls necessary to operate the projection equipment, including associated apparatus not located in the projection room proper, such as rectifying equipment, ventilating fans, effect lighting, stage curtains used for motion picture presentation, etc.

(11) A house phone or other means of communication between projection room, auditorium, and manager's office.

(12) No film other than that actually in projectors or being threaded. This requires, of course, that there be an adjoining room for rewinding, inspection, and storage.

(13) One or more qualified projectionists, who shall not be minors, (NBFU, Sec. 217.)

To operate a projection room with minimum fire hazard and first-class screen results requires that at least two projectionists be on duty at all times. Large theatres using more than two projectors, spotlights, effect machines, etc., in the projection room must have more men in proportion to the additional equipment.

This outline covers only what must be in the projection room proper. Even for the one-man room, there is need for adjoining space to accommodate rectifying equipment, shipping cans, a complete stock of supplies and spare parts, oil cans, tools, and test equipment not ordinarily used during a performance, a work-bench with vise, clothes lockers, books, records, and any other items necessary to the operation of the projection room, but which need not and should not be inside the projection room proper.

J. R. Prater is now in the radio maintenance division of the Naval Reserve. His background in the projection field dates back to 1923, when he first began showing pictures at North Central High School in Spokane, Wash. His first experience projecting sound pictures was in Lewiston, Ida., in 1929. For many years he was with Northwest Motion Pictures laboratory in Spokane and Seattle, where trailers, special announcement films, and occasional news reel subject assignments were covered with 50 to 75 prints frequently turned out for immediate distribution on the west coast. At this laboratory, his duties included every phase of production from hand-lettering title cards to projecting and shipping finished prints. In 1935, he returned to projection and servicing at the Congress, Palouse, Wash., with two additional small theatres in nearby towns subsequently added to the same organization, and placed under his care.

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Long recognized as the standard projection lens in American theatres and as being excelled only by the Cinephor and Super Cinephor Series.

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ESTABLISHED 1853

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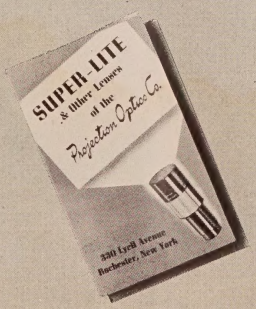
The great task of every exhibitor in this emergency is to help in maintaining public morale. Therefore, his foremost problem will be to keep his present projection equipment in good order.

Although we may be cut off from selling new lenses, we stand ready to service the theater to the best of our ability.

The all-out effort of our country to win this war will necessitate inconveniences, but we are confident that all difficulties will be overcome by mutual coöperation.

The Lens of Superior Quality



For detailed information ask for our folder SL.

SUPERLITE III-C

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Type of Lamp	Type of Carbon	Size	Maximum Recommended Arc Current Amperes	Arc Volts	Maximum Screen Lumens 90° Shutter	Maximum Screen Width with 9 Ft. Lamberts at Center — 75% Screen Reflectivity
Condenser Type	High Intensity, White Flame Positive "Orotip" Cored Negative	13.6 mm x 22 in. $\frac{3}{8}$ or $\frac{7}{16}$ in. x 9 in.	130	69	4350	23.7
Simplified High Intensity	"Suprex" Cored Positive "Suprex" Cored Negative "Suprex" Cored Positive "Suprex" Cored Negative	7 mm x 12 or 14 in. 6 mm x 9 in. 8 mm x 12 or 14 in. 6.5 or 7 mm x 9 in.	50 65	36 36	2950 3600	19.5 21.5
One Kilowatt Arcs D.C.	"Suprex" Cored Positive "Orotip" C Negative	7 mm x 12 or 14 in. 6 mm x 9 in.	40	27.5	2150	18.0
One Kilowatt Arcs A.C.	"Suprex" Cored Forward "Suprex" Cored Rear	7 mm x 12 or 14 in. 7 mm x 12 or 14 in.	66	22		

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HIGH INTENSITY PROJECTION

Much attention is being given today to the need for more and better lighting. Sight saving campaigns and other forms of publicity have made people light conscious. That is why high intensity projection has received such enthusiastic response from theatre patrons. They notice and show favorable reaction to the improvement in theatre lighting that results when high intensity projection lamps are installed.

High intensity lamps provide a greater volume of screen light than low intensity lamps. This allows a clear screen image to be shown in the presence of a safe and comfortable level of general illumination. Patrons entering the theatre from the brilliant light of the street or lobby can find their seats without discomfort or embarrassment, while the absence of extreme contrast between the screen and surrounding illumination adds to visual comfort in viewing the picture.

A further advantage of the high intensity arc for projection is the snow white quality of its light. The light from the low intensity arc is yellowish. This distorts the hues of color features and detracts from the impression of realism which color is designed to create. High intensity projection reproduces all colors with great fidelity and gives a realistic quality to color features not otherwise obtained.

"ONE KILOWATT" ARCS

From the standpoint of the small theatre, the development of the "One Kilowatt," high intensity arc ranks among the most important advances in the art of motion picture projection. It enables the smallest theatre, at no increase in operating cost, to have the advantages of snow white projection light and the recommended level of illumination on the screen.

The use of the high intensity arc for projection has, from the beginning, met with the hearty approval of theatre patrons. Theatres that could afford to install and use the more expensive types of high intensity projection lamps have held a decided advantage in respect to quality and abundance of projection light.

The development of the low intensity reflecting arc lamp put the small theatre more nearly on a par with its large competitors in respect to projection quality until the advent of color. Then the superiority of high intensity projection light for color films proved so noticeable that users of low intensity projection lamps were again placed at a serious disadvantage.

The "One Kilowatt" arc, without increasing operating cost, now allows the small theatre to give its patrons 50 to 80 per cent more screen light, realistic color reproduction and a quality of picture presentation unsurpassed by any theatre, regardless of size.

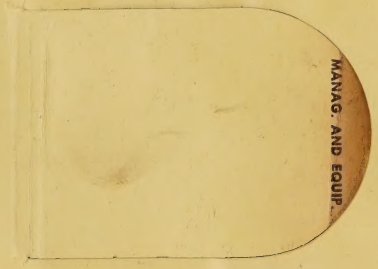
THE THEATRE CATALOG

1942

&

Management

and Equipment



THUMB-DEX
Patent No. 1579575

Simple Theatre Records

THAT I HAVE FOUND TO BE PRACTICAL!

The amount of time each day that is necessary to keep them up-to-date,—and their statistical value,—are major considerations.

by Larry Woodin

IT'S BEEN A LONG STEP from those days when a five dollar bill would buy a week's supply of product, and a week's gross of $50 was enough to tempt an "exhibitor" to quit his job in the factory and devote all his time to the "theatre". Yes, its been a long step to 1942 when theatre operation is subjected to admission taxes, consent decree selling, social security, unemployment compensation, and the countless number of new increasing operating costs that face every exhibitor. No longer can the back of an envelope serve as a theatre record. Theatre operation now demands record forms that are useful as well as permanent. They must all serve a two-fold purpose. They must act as a complete up-to-the-minute picture of the business at all times in all departments and at the same time serve as a means of helping make the house show a profit as well as maintain its original physical condition while paying for its initial investment.

Such theatre record forms must be designed so that a theatre manager will not have to spend the major portion of his time keeping them, as is true with many antiquated forms now in use. They must be brief, concise, easy to keep, accumulative, and must eliminate all duplication of entries.

Throughout the past 15 years I've found or originated my own theatre record forms which now help assist in making it possible for me to make a profit with a minimum of bookkeeping effort. A few minutes each day is all the time I spend on my reports and books, while many managers I know spent hours each day on their daily statements, and often a day on the weekly report.

I have found that there are four types of theatre record forms necessary today to successfully operate a theatre. These include operating records, buying and booking records, tax records, and maintenance records. While this may seem like a lot of forms, only a few of them are used daily. Some are only in use at the close of the year's business while others are used by the employees.

OPERATING FORMS

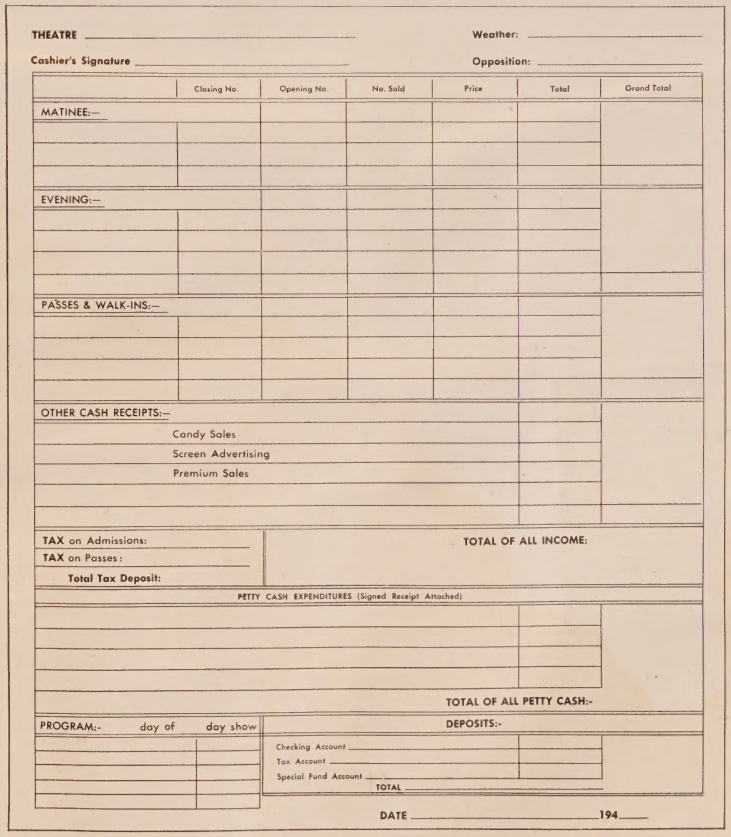
Since the theatre business is a cash business, all that is necessary to keep a record of daily ticket sales, admission taxes, screen advertising revenue, store sales, rents, vending machine sales, or any other source from which the theatre can derive revenue, is a *Daily Boxoffice and Cash Statement*. The following is an illustration of that which I have devised and use in my own house. (Fig. 1).

This daily statement also shows all *cash* expenditures for the day, whether they be for a few postage stamps or a large C.O.D. In other words, this daily statement will show, at the end of the day, every cash transaction made. When it is completed the amounts for the bank deposits are arrived at, and one can make one or several deposits to suit the individual needs. Note that I carry the admission taxes in a separate bank account, and make a separate deposit each day. Thus, when they become due I haven't made the common mistake of losing this money in the checking account, and spending it for something else.

Also provided on this statement is a place for a Special Fund deposit to be made each day to retire notes and bonds as they become due. These are definite fixed charges that cannot vary, and this special deposit will insure your ability to meet them by setting the money aside each day. I do this and run the rest of my business on my checking account.

Likewise it will be noted that this daily statement provides space for the weather, opposition, program, and cashier's signature. I have never deemed it advisable to enter film costs on the daily report. That item belongs where only the exhibitor can see it—in the Check Book and on the Contract Record in the EXHIBITOR Service Kit.

At the end of the day it will be found that the cashier has done the bookkeeping. All that remains to be done is to recheck it for errors, which should not



THEATRE _____ Weather: _____

Cashier's Signature _____ Opposition: _____

	Closing No.	Opening No.	No. Sold	Price	Total	Grand Total
MATINEE:—						
EVENING:—						
PASSES & WALK-INS:—						
OTHER CASH RECEIPTS:—						
Candy Sales						
Screen Advertising						
Premium Sales						

TAX on Admissions: _____

TAX on Passes: _____

Total Tax Deposit: _____

TOTAL OF ALL INCOME:

PETTY CASH EXPENDITURES (Signed Receipt Attached)

TOTAL OF ALL PETTY CASH:-

PROGRAM:- day of day show

DEPOSITS:-

Checking Account	
Tax Account	
Special Fund Account	
TOTAL	

DATE _____ 194____

FIG. 1. The Daily Boxoffice and Cash Statement furnishes a detailed record of all receipts and petty cash disbursements for that one day. When signed by the cashier at the end of the day, it should be inserted in a post binder for all future references to that day's activities.

take over a minute of your time and which after all should be mainly devoted to getting customers into the theatre.

CHECK BOOK

The check book should be kept as an accurate record of the checking account. Enter the checks in detail on the check stubs and each day add the Checking Account deposit as shown on the Daily Box Office Statement to the Check Book balance, so that at all times there will be an up-to-the-minute picture of the bank account. Most theatres average about five checks a day, and this takes very little time. When the check book has no more checks, cut off the covers at the edge of the stubs and file them as a permanent record. This does away with the old tedious job of recopying all the checks into a check register, and then posting them into a ledger. Using the check book this way keeps film cost, payroll, and other confidental figures out of sight of employees or any one else.

Here is the way my check stubs look when I've written checks. (Fig. 2).

MONTHLY CASH SHEET

Our Check Book stubs and our Daily Box Office Statement now give us a record of all the money received or paid out for the day.

What we now need is a *Monthly Cash Sheet* where we can combine all these figures into one complete *accumulative* picture of the day's business that will act as its portion of the year's record and guide (and not take hours of work to do it).

I have devised a theatre monthly cash sheet. Below will be seen both sides of such a sheet, with all the figures transcribed to it from the Daily Statement and Check Stubs shown before. (Fig. 3 and Fig. 4).

A glance will show that no bookkeeping knowledge is needed to be able to transfer these figures from the daily statement and the check stubs. Note that all money paid out on the same day for the same item is totaled and entered as one amount, thus eliminating duplication. In entering Employees' Checks the full amount of their salary is entered in the Labor column on the Expenditures side of the sheet, and the amount of the Social Security deducted is entered under Taxes, S.S. column on the Receipt side of the sheet, as actually they're paid their full amount of their salary, and they give back one per cent for their Social Security contribution. Itemize each tax paid in the Tax column, as another separate Tax account should be carried in a Ledger or a Tax Record.

We now have all our transactions for the day on one monthly accumulative Cash Sheet. In a moment's time one can always see where the film cost for the year is heading, how much is being spent on advertising, or any other figures that one might wish to know about the business for the year.

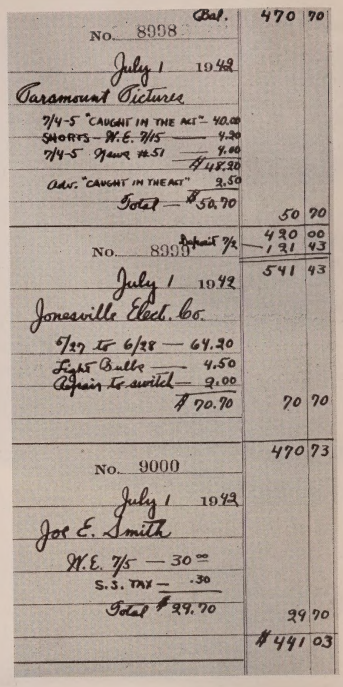


FIG. 2. The Check Book Stub should record the pertinent details of every major expenditure and acts as a permanent record that can be bound.

Theatre

MONTH_____ YEAR_____ RECEIPTS

DATE	DAY	TICKET SALE	ADMISSION TAXES	LOBBY STORE	SCREEN ADS	S.S. TAXES			MISCELLANEOUS INCOME	FEATURE ATTRACTION	WEATHER	REMARKS	TOTAL PAID ADMISSIONS
TOTAL FOR YEAR TO DATE													
1													
2													
3													
4													

(Editor's Note: Center portion deleted due to space limitations)

30													
31													
TOTALS FOR MONTH →													
TOTALS FOR YEAR TO DATE													

TOTAL CASH RECEIPTS	THIS MONTH	
	YEAR TO DATE	

FIG. 3. FRONT of the Monthly Cash Sheet. One designated line suffices for each date in the month. Only gross totals taken from the daily statement and check book stubs are entered. A carryover total from month to month provides yearly totals as of any one day or period.

MONTH_____ YEAR_____ EXPENDITURES

DATE	LOBBY STORE SUPPLIES	FILM RENTALS	ADVERTISING	INSURANCE	LABOR	POSTAGE & TRANSPORTATION	SOUND SERVICE AND PARTS	OFFICE SUPPLIES	TICKETS	TELEGRAPH AND TELEPHONE	HEAT GAS, COAL OR OIL	ELECTRICITY	ELECTRICAL SUPPLIES	BOOTH SUPPLIES	CLEANING SUPPLIES	REPAIRS	VAUDEVILLE	TRADE PAPERS	WATER	SPECIAL DEBT FUND	RENT	TAXES (ITEMIZE EACH)	MISCELLANEOUS
TOTAL YEAR TO DATE																							
1																							
2																							
3																							
4																							
5																							

(Editor's Note: Center portion deleted due to space limitations)

30																							
31																							
TOTAL FOR MONTH																							
TOTAL YEAR TO DATE																							
% OF TICKET SALES																							

TOTAL CASH PAID OUT	THIS MONTH	
	YEAR TO DATE	

FIG. 4. BACK of the Monthly Cash Sheet. Again entered on a daily basis with previous month's carryover at bottom, a full year requires only twelve full sheets. Because of its itemized nature, past payments are easily located.

Schedule of PROGRAMS and RUNNING TIMES

Week of _____

DAYS	ATTRACTIONS	STARS	Producer	Running Time	MARQUEE COPY
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

SPECIAL INSTRUCTIONS:-

COMING NEXT WEEK:-

FIG. 5. The employee's Program and Running Time Schedule. Supplied in duplicate to the cashier, doorman, operators, billposter, film delivery service, and marquee crew, it gives each the uniform information necessary to his job and the accurate answers to dozens of daily questions.

Any other forms that I have ever seen require much additional scratch pad bookkeeping to get any real service out of the records. Look at the forms now being used by yourself and see if they will tell to the day how much is spent for film so far this year, and see how long it would take to find out what percentage of the gross so far this amount represents. If the forms don't give quick answers without a lot of extra work, well, the records are being kept for the Government, not yourself. For Government use and insurance companies, a record of the total number of paid admissions is important and few if any forms provide for this item.

Many small theatre owners can stop right here for they know in their own mind what the theatre is worth, and how much they owe at the bank. From the above, they can compute any facts they need.

THE LEDGER

For the bookkeeping-trained theatre owner who wants a final complete correct record, one more step is necessary. This involves the keeping of a standard ledger. Herein one carries his Cash, Equipment Building, Stock, Depreciation, Notes, Bonds, Interest, Land, Profit and Loss, Inventory, Surplus or Deficit, Taxes, and other stable accounts that many theatre men try to carry in their head.

To the theatre owner who knows how to keep such a Ledger will readily appear the ease with which he can post his yearly totals from the final monthly cash sheet at the close of the year, and then from the Ledger draw off Operating Statements and Final Financial Statements.

I hesitate to attempt to go into detail concerning this step, as it involves a knowledge of bookkeeping which cannot be taught in an article such as this. However, the manager unfamiliar with these final bookkeeping steps will find that his accumulative cash sheets, together with his daily statements and his check stubs, will serve all his needs and, at all times, give him a fair picture of his business operation.

The accumulative cash sheets totals at the close of the year will serve as an annual operating statement for the manager who can't do these final steps of Ledger maintenance.

So, for the theatre operator who wants an easy, complete, up-to-the-minute record of his business, I'd suggest the use of these three operating forms, the Daily Book and Stubs, and the Accumulative Box Office and Cash Statement, the Check Monthly Cash Sheet, to be used as shown herein.

EMPLOYEES' RUNNING TIME AND PROGRAM SCHEDULE

Each week I supply my cashier, doorman, operators, billposter, and marquee crew with a copy of the theatre program made out on the schedule illustrated below. It gives them all the information they need and explains itself. (Fig. 5).

It carries the copy for the marquee as well as all information that might be needed to answer patrons' questions.

LIGHT-POWER AND HEAT SCHEDULE

Every January I post a yearly schedule of the light, power, and heat costs for the year, showing each month's figures. The object is to have the employees do their part to hold the next year's bills to the same figure or less.

It's a simple job to make out such a form like the following: (Fig. 6).

This becomes a basis for staff economy drives. It helps get the marquee turned off at the correct time, lights out when not needed, and promotes a keen employee interest in economy.

TAX AND PAYROLL RECORDS

I've tried several ways to keep Payroll and Social Security Tax records. The easiest way I know is to use a standard payroll record form designed for this purpose similar to the one which follows entering the amounts for each employee at the time the check is written for any one payday. Thus, at the end of the quarter, records are ready for a report,

LIGHT • POWER • HEAT

These are the monthly bills for the past year. Let's try to lower them this year
TURN THAT SWITCH OFF – WHEN NOT IN USE!

LIGHT and POWER			HEAT		
MONTH	LAST YEAR	THIS YEAR	MONTH	LAST YEAR	THIS YEAR
January			January		
February			February		
March			March		
April					

FIG. 6. The Light, Power, and Heat Schedule is permanently posted and kept up-to-date. It gains the employee's interest in operating costs and promotes economy.

before check is sent in. The Government requires this to be done, and it is just a case of getting in the habit, and finding the easiest form to use. This is why I total my weekly payroll under one figure for entry on the Monthly Cash Sheet I can't see any necessity of entering the individual payroll records in two or three places, as is the case in old style forms used in conjunction with new Social Security requirements such as this form.

All taxes should be itemized on the monthly cash sheet and transferred to a Tax Account in the Ledger or a Tax Record book of some type where such a grouped itemized record can be kept available at all times. (Fig. 7).

BUYING AND BOOKING RECORDS

A film buyer without completely broken down past records on some form of a contract record and cut-off sheet is out of luck if he expects to buy intelligently, and not end up at the end of the season loaded with product for which he has paid too much. For many years I've used a system that I learned from my dad, William L. Woodin, an exhibitor since 1904, who used to buy films by the suitcaseful, untitled and unsung.

This past season THE EXHIBITOR made available to exhibitors a SERVICE KIT. When I saw it I thought that someone had been in my desk, and used my old layouts for a worksheet for these forms. All I can say is this. I've been using the SERVICE KIT* for months and it is just about as perfect a set-up for buying and booking that any exhibitor could ask for. However, be sure to enter film costs and grosses daily on the contract cut-off forms and thus keep it up-to-date at all times. These figures are the only defense and guide one has when one gets ready to buy the next block or the next season's product. These KITS have complete booking sheets and availability worksheets.

One other sheet that I have designed for my own use is what I call a Playdate Control Sheet. It is my insurance that I don't overbuy on features, shorts, newsreels, serials, or westerns, and also that I do not allocate too many preferred dates. In looking at the illustration which follows one can readily see that if, whenever one purchases any film he enters the amount on this sheet, he will end up at the close of the seasons with room for the new product.

From past experience, over a number of years, the approximate number of shows or shorts can be estimated as a basis for buying.

I figure my shorts in reels and my features in playdates. In other words, when one buys a feature for three days, three playdates are gone and the exhibitor should not think he can ever get them back this season. (Fig. 8).

MAINTENANCE RECORDS

The number of variety of maintenance records required by the house depends upon the exhibitor and his situation. Small situations require no or few forms for maintenance as the manager is close to all phases of the house's physical operation.

However, for tax purposes, every theatre should set up a Depreciation Schedule for the building and all equipment. It's a major deductable item on the income tax return, and one will realize in keeping it where the equipment is heading unless it is replaced at regular intervals. Here is one I've been using successfully for 15 years. (Fig. 9).

INVENTORY FORMS

Theatres of various sizes can use various styles of inventory forms. The small operator keeps a visual inventory of tickets, billposting supplies, cleaning supplies, booth supplies, etc. However if the situation is big enough, one might need one or several forms to be kept by each department in the house to act as a guide in keeping an adequate supply of all needed necessities on hand. An annual inventory of the whole situation should be made from roof to cellar. (Fig. 10).

OTHER FORMS

There are many types of other operation and maintenance forms in use by theatres throughout the country designed to meet the specific situation. I've found that employees don't like to have forms to fill out every time they need a new

EMPLOYEE'S PAYROLL RECORD
FOR COMPLIANCE WITH THE WAGE & HOUR & SOCIAL SECURITY ACTS

DATE OF BIRTH
PLACE OF BIRTH
HOW MANY YEARS IN THIS STATE?
STARTING DATE OF EMPLOYMENT

NAME
SOCIAL SECURITY NO.
ADDRESS (NUMBER, STREET)
CITY, STATE

MONTH	WEEK OF	HOURS WORKED DAILY: RUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.	TOTAL HOURS WORKED	WAGE RATE: WEEKLY SEMI-MO. MONTHLY	HOURLY	EARNINGS: AT REG. RATE FOR TOT. HRS. WK.	EXTRA FOR OVERTIME	TOTAL	DEDUCTIONS: FED. O.A.B.	STATE U.C.	TOTAL	NET WAGES PAID FOR WEEK	EMPLOYER'S TAX: FED. O.A.B.	UNEMP. COMP. FED.	UNEMP. COMP. STATE
JANUARY																					
FEBRUARY																					
MARCH																					
1ST QT. TOTALS																					
APRIL																					
MAY																					
JUNE																					
2ND QT. TOTALS																					

FIG. 7. The Tax and Payroll Record is a standard form obtainable from most stationers. It requires a weekly entry and one sheet for each regular employee.

FILM PURCHASE CONTROL SHEET

SEASON OF:

PRODUCER	NUMBER OF PLAYDATES Max.	Min.	ALLOCATED PREFERRED DATES	REELS OF SHORTS	WESTERNS	SERIALS	NEWSREELS Exp. Date
TOTALS							
MAXIMUM NEEDED							
MINIMUM NEEDED							

Remarks:

FIG. 8. The Playdate Control Sheet is an annual record, of value principally during the buying season. In actual playing off of committments, a system such as THE EXHIBITOR SERVICE-KIT is a prime essential.

* EDITOR'S NOTE: Mr. Woodin refers to a buying and booking system prepared by THE EXHIBITOR, 1225 Vine Street, Philadelphia, Pa., and sold at cost to only subscribing theatres. Many of Mr. Woodin's copyrighted forms here described will soon be available on the same basis.

DEPRECIATION RECORD for Theatre and Equipment _____ THEATRE

EQUIPMENT { (N) designates NEW / (U) designates USED }	DATE of purchase	No. of years	COST OR VALUE (Use greatest)	CHARGE OFF 19.....	CHARGE OFF 19.....	CHARGE OFF 19.....	CHARGE OFF 19.....	CHARGE OFF 19.....	CHARGE OFF 19.....	CHARGE OFF 19.....	CHARGE OFF 19.....	TOTAL DEPRECIATED
TOTALS												

FIG. 9. Maintenance Records form both a chart of value received for dollar expended, and a basis for depreciation charge-offs for tax purposes. Theoretically a special depreciation fund should be set up that when an item is completely depreciated, the money has accumulated to replace it.

hammer or a few light bulbs when they can just as well tell the manager this fact, and thus feel as though they are on speaking terms with the "boss".

Employees who have to fill out several forms every time they turn around are often of the dissatisfied type. There are few theatres so big that it takes correspondence between the employees and the manager to place a request for a needed item, and yet circuit operation in many small situations today has janitors spending valuable time filling out forms when they might better be doing some more cleaning. My thought has always been that one can overdo this "form" business, and the simpler it can be kept the better the employees will like it.

I'd suggest visual inspections by the manager rather than written reports by the employee, and verbal orders to the manager by the employees for items needed rather than order forms to be filled out by the employees, and presented to the manager.

Regular inventories kept at the manager's finger tips will act as his guide when employees request supplies or new equipment, and the best way to keep a check on the general maintenance and condition of the house is to keep an eye on it personally. In other words, take a look at the show, and inspect the house regularly. Don't forget to get off the main floor and see all parts of the house.

How long since you've been in the booth while a show was on?

Those boys up there are human. Why not get acquainted with the help, and then let them spend their time keeping the house in A-1 condition, putting out a good show, and treating the public cordially while they are customers. Keep the forms yourself, and let them devote their time to keeping your customers coming back.

One can readily see I'm not much in favor of forms for employees. Rather, I believe that their job is conducting the performance and all its phases. The theatreman's job is to have the right forms well kept so that one can provide good entertainment and make a profit while doing it. As long as the theatreman is the one to keep the records, why not check them over, and see if they are easy to keep and if they are serving any purpose other than acting as mere records.

INVENTORY RECORD

Taken by: — Date: —

QUANTITY	DESCRIPTION	AGE	COST	CURRENT VALUE

FIG. 10. Inventory Sheets are a control for uses and leaks of basic supplies that every theatre should stock and have available in quantities. Monthly, quarterly, or annually, all stocks should be inventoried and checked against the previous totals together with all new shipments received.

CONTROL

It will be noted that on the *Monthly Cash Sheet* which I have illustrated that I have on the Expenditure page a row of blank spaces across the bottom labeled "Percentage of Ticket Sales". This i my control portion of my records.

Each year I determine the safe percentage of ticket sales that I can devote to each expenditure, and I try to hold it there throughout the year (taking off-season periods into consideration as well as unusual trends). If one wants a profit of 10% net in the house the owner has to run the place on 90% of the ticket sales or he just won't have profit at the end of the year. If he goes overboard in a few items of expenditure throughout the year without noting it until it's too late, well, there goes the profit again. This accumulative Cash Sheet makes it possible to keep a check on figures at all times and thus keep aiming at the profit.

Raised in the business, Larry Woodin calls himself the industry's "youngest old timer". He claims to have slept in the first row back of the player piano in 1904 until his mother finished selling tickets, while his dad ran the one machine in the 90 seat house. He has played a part in theatre operation for over 37 years, even including trap drums and slinging 24-sheets. His father, W. L. Woodin, past owner, Keystone, Towanda, Pa., retired a few years ago, after selling his interest to the Comerford circuit. For 15 years Larry Woodin has been operating the Arcadia, Wellsboro, Pa., a 900 seat house in a 3600 population area, where he has directed most of his efforts towards managing the house and publicizing "Pennsylvania's Grand Canyon", an outstanding state resort area. This he operates for the state of Pennsylvania, and also helps fill his theatre. He claims that bookkeeping was his easiest subject at school, and declares that the past 15 years have been spent cutting corners until today he believes he has the most concise, up-to-the-minute set of records for theatre use.

Controlling Cash

IS AS IMPORTANT AS COLLECTING IT

An authority on Cash Control Systems surveys a new ticket and method that promises to stop many normal theatre income leaks.

by E. Bruce Johnson

THE MOTION PICTURE THEATRE has made magnificent strides forward from the days of the Nickelodeon. The tin pianos, flickering screens, uncomfortable hardwood chairs, lack of ventilation, and the many other ancient institutions identified with the incipient stages of the business have all been supplanted with newer, better improvements.

The outstanding single exception to this remarkable record of achievement is the control of box-office receipts, and this, despite the fact that the box-office receipts of the motion picture theatre have, throughout the years been sapped and siphoned for millions of dollars by a lack of adequate control. No constructive progress has been made in an effort to provide a proper remedy. Ticket issuing machines to issue the tickets sold mechanically and to keep a record of sales mechanically have been designed and installed. Circuits have established and inaugurated staffs of detectives employed to detect irregularities, and systems of reporting box office receipts to the management have been devised. Yet, throughout all the years, the leakage at the box office and the theatre door has continued to be a sum of considerable magnitude. Hardly a month passes but that there is turned up at some theatre acts involving many thousands of dollars, and it is only too well realized that the discovered peculations and embezzlements constitute only a small part of that which occurs.

A great deal of this loss is due to negligence on the part of the management. The management will not always insist upon getting the full effect and efficiency of partial preventive means placed at its disposal. The management will purchase ticket issuing machines, and then make no effort to utilize the counters and registers incorporated therein. The management will not see to it that the record revealed by these counters and registers, with respect to the numbers and denominations of tickets sold, corresponds with the numbers and denominations of tickets sold, as revealed by the serial numbers on the tickets. It is difficult to understand why management, which has made such magnificent efforts to produce the maximum cash receipts at the box office, does not, and has not applied the same degree of intelligence in conserving that revenue, when it has been garnered.

THE MOTION PICTURE INDUSTRY has not realized why it has failed to devise a proper method of box office control. The motion picture industry has built all systems of control around a ticket that is faulty, and does not permit of a proper system of control being built around it. Therein, lies the fault.

The industry still uses the same type of ticket that opened the first Nickelodeon that was ever built. During all these years of advancement and achievement, there has not been a single step forward in the ticket that is the currency of the motion picture industry. Until there has been progress in this respect, the industry cannot hope for any successful method of box office control.

Recently there has been placed upon the market, and offered to motion picture theatres, a ticket that is a great improvement over the old ticket, in fact, a ticket which offers the only improvement that has ever been offered in this respect to the industry.

In order to determine why this new ticket is an improvement, let us examine the vices of the old ticket and the virtues of the new. As we all know, the great vice and the inherent one in the old ticket is the ability of the doorkeeper to palm it. Out of his manipulations he can obtain for himself several whole tickets, which are, either by him or through agencies, sold on the outside for his benefit, or turned back to the cashier, in collusion with the latter, for resale. The old style ticket, if more than one is sold at a time, is sold in strips. It is the custom of most houses to tear the tickets in two, the doorkeeper depositing one half of the ticket or tickets in the ticket chopper and returning the other half to the patron or patrons as stubs. In order to do this, if one or more ticket is sold at a time, the tickets have to be folded. In the folding operation, the doorkeeper is given his opportunity to manipulate his palming ability. In addition, folding tickets takes time, and taking time holds up lines on busy nights. This disadvantage to the management works in the doorman's favor. In an attempt to speed up the line, he can pursue more vigorously, efficiently, and with less likelihood of detection, the palming of and withholding of tickets.

THE NEW STYLE TICKET is not a single ticket. If a purchase is made of three tickets, the patron does not get three separate tickets on a strip that has to be folded in order to he torn in two. He gets, instead, a ticket good for three admissions stamped with the date of sale, and on each portion of the ticket the number of persons entitled to admission on that ticket. For example: 3. The new ticket is perforated down the center, so that the doorman, in order to retain one half for the theatre and give the other half to the patron, does not fold the ticket, but by a gentle pull slits the entire ticket down the center. There is no folding of the newly devised ticket. There is no unfolding of the new ticket by the doorman (which takes time) if the patron, thinking to be helpful, had, before presenting his tickets to the doorman, folded them. There is no doubt, nor can there be in the mind of any person, doorman, management, or spotter, how many people are entitled to admission on a new style ticket, because as the ticket is not folded, by its very length it indicates the number of people entitled to admission. In addition, plainly printed by the ticket issuing machine at the time of issuance, there is printed on the new ticket, in large figures, the number of people entitled to be admitted. In eliminating palming, which the new ticket does to the extent of making that trick a most difficult feat, the new ticket will eliminate a great deal of box office embezzlements.

ANOTHER LARGE SOURCE of box office leakage is the use of counterfeit tickets. Any dishonest exhibitor, manager, or doorkeeper, can, if he wishes to go to the effort to do so, obtain counterfeit tickets. The industry is replete with incidents of this sort, and the amount of money that has been improperly obtained in this manner is a sum so large that it would be difficult to estimate. Known and discovered particular instances have run into very large sums of money. These counterfeit tickets are obtained in several ways. There are ticket printers all over the country that would do a job for whomever ordered it, and paid for it. Most tickets are the usual stereo type form of ticket, and are printed on practically the same stock. Most ticket printers could knock out "duplicate" tickets in a few hours time, a stock job for them. There have been, and there still may be, certain illicit ticket printers, who are engaged in the business of printing counterfeit tickets. There doesn't seem to be any serious penalty that can be imposed upon a ticket printer for the printing of counterfeit tickets. Perhaps, the ticket printer doesn't know that the tickets are to be used for illicit purpose.

CORRECT CHANGE
DIRECTLY *to* PATRON
in LESS *than a* SECOND

The Model 201 Brandt Automatic Cashier, illustrated, is the ONLY change making machine that delivers change in any amount from 1c to $1.00, directly to the patron by pressing a single key!

MODEL 201

MODERN THEATRES NEED THIS MODERN CHANGE MAKING MACHINE!

You can settle your change making problems for all time by the installation in your box office of a **Model 201 Brandt Automatic Cashier.** No matter what your admission prices may now be or what they may be at any time in the future—whether odd cent amounts or multiples of 5c—change is delivered directly to patrons in less than a second by pressing a single key—the key corresponding to the price of admission.

Because it is speedy, simple to operate and errorproof, **Model 201 Brandt** makes change in the shortest possible time. It does away with unnecessary confusion and congestion at the box office and permits patrons to enter your theatre without delay.

This machine is guaranteed for ten years. Because of its sturdiness of construction it can be expected to serve many years beyond the guarantee period.

Write today for a TRIAL of **Model 201 Brandt Automatic Cashier** without cost or obligation of any kind to you. A machine will be placed in your box office for trial with the understanding that if for any reason you should decide against purchase, it will be removed as cheerfully as placed.

Buy Guaranteed Brandt Products

BRANDT AUTOMATIC CASHIER CO.

DEPT. T42 *Established 1890* **WATERTOWN, WISCONSIN**

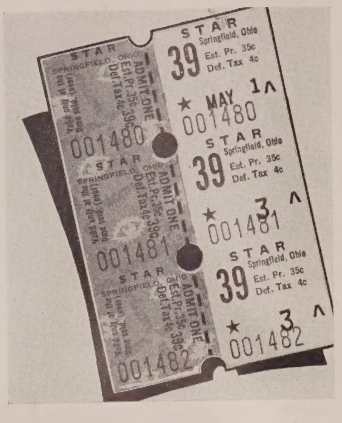
BRANDT
AUTOMATIC CASHIERS

BRANDT AUTOMATIC CASHIER CO.

Howbeit, there is hardly a circuit of any size in the country that could not relate some experience with counterfeit tickets.

The new style ticket is a patented ticket. No ticket printer has the right to print the new ticket unless he has been licensed to do so. Only legitimate ticket printers have been, and will be so licensed. Any ticket printer licensed to print the new ticket will be only too pleased to make a report to particular respective theatre managements of the orders that it has received for the printing of the new tickets. No licensed printer of the new tickets will knowingly, unauthorizedly, or improperly print new tickets. If a certain theatre is doing business with a certain new ticket printer, and a dishonest employee should attempt to get new tickets from some other ticket printer, the management, receiving such news from such other ticket printer of the order placed with it, would at once know that something was wrong. Unlicensed ticket printers would not dare to print the new ticket because they would be subjected to severe legal penalties, which they are not now subjected to in printing the old ticket. Furthermore, a theatre may have the signature of one of its officials or its trade mark printed on the new ticket. Then the unauthorized printing of or use of the new ticket would subject the malefactor to severe legal penalties, not only because of the violation of Federal patent laws, but also because of the violation of Federal trade mark laws and the laws of the various states making forgery a crime. In the respects just mentioned, the new ticket affords the theatre a protection that it does not have in the use of the presently used old ticket.

MENTION has been made of the fact that it is customary for the doorman to deposit the theatre's half of the ticket in the ticket chopper. Many theatres attempt to protect their box offices by counting, sometimes daily, sometimes every now and then, the number of stubs so deposited in the ticket chopper. As everyone connected with motion picture exhibition knows, this is a most unsatisfactory method. Intended to prevent defalcation, as it is now handled, it is a long, tedious job to count all of the stubs of a theatre daily, checking all the stubs of various admission price denominations. Consequently, it is rarely done daily, and a system known as "spot checking" is used instead. Every now and then, at certain periods supposedly known only to the management, the order is sent forth that a certain theatre is to be checked, or that the theatre stubs of a certain day's business are to be checked. However, as has been said, the job of checking is still a long and tedious one. The new ticket and system makes the job of checking its stubs for a day's receipts an easy one. All stubs have a distinguishing color on them that



quickly indicates to the eye various price denominations. All stubs are in the length in which they were sold. All that it is necessary for the checker to do is to separate the stubs of each price denomination, then separate each price denomination into the respective lengths of the respective stubs, such as, 1, 2, 3, 4, or 5. In this process any unauthorized stubs are quickly detected, because of their obviousness. Then all that is necessary is to count the piles. Count the piles of singly sold tickets. The piles of double admission sale stubs are multiplied by two and by the price involved, and so on with the stubs indicating three admissions, four admissions, and five admissions. Thus the checking of a box office is made an easy, simple, and accurate procedure.

THE OLD TICKET is one inch wide by two inches long, and a strip of five of them would be one inch wide by 10 inches long. The new ticket, instead of being one inch wide by two inches long, is two inches wide by one inch long. Turn one old ticket around at right angles, and then one has the size of the new ticket for one admission. Consequently, a new ticket for five admissions would be two inches wide by five inches long. Due to this change of the size of the new ticket, and due to the fact that it was deemed advisable to have the ticket issuing machine print on each issued new ticket the date of issuance and the number of people entitled to admission for each particular sale, it was necessary, to design and build an entirely new ticket issuing machine to issue the new ticket. However, having in mind that most of the theatres use ticket issuing machines of certain accepted standards and makes, the new machine was designed so that unit for unit it would fit into the same size box office counter of the standard make machine. If a theatre had a 3-Unit Automaticket or Gold Seal ticket issuing machine, in order to make an installation of the new machine, three unit size, it would not be necessary to recut the box office.

The fact that the new machine prints the date and the number of people entitled to admission on the ticket, as the ticket is sold and issued, provides box office control with another added very important feature. This is that this printing validates the ticket. It not only tells management when a particular ticket was sold, but it also tells management that that particular ticket went through the ticket issuing machine and was registered on the registers and counters of the ticket issuing machine, and that the money for the sale of that ticket should be in the box office till. If the management should see a new ticket presented to the theatre door for admission that did not bear the date nor the number of persons entitled to admission, the management would know that that new ticket did not go through the ticket issuing machine, that the money for the sale thereof had not been accounted for, and that in all probability it had been improperly sold. Theatre management will realize full well the importance of this feature, because the history of the motion picture theatre is replete with many instances of tickets having been sold for admission, the money for which did not get into the box office.

THERE IS NOTHING about the new ticket or the use of the machine that issues it that will in any manner whatsoever interfere with any existing system of reporting, accounting, or bookkeeping now had in operation by management. A circuit may have some of its theatres equipped with new machines handling the new ticket, and others of its theatres equipped with the present machine handling the old ticket, and there is absolutely nothing in that phase of the situation that would in any manner whatsoever interfere with or make more difficult bookkeeping or accounting.

There are many other features in connection with the new machines and new tickets that may or may not be installed just as the management deems advisable.

E. Bruce Johnson was born at The Dalles, Ore., on Oct. 12, 1884. He was general manager for Turner and Dahnken, operating a circuit in central and southern California and Nevada, from 1907-1920. In 1917 he assisted in the organization of First National Exhibitors Circuit, and in 1920 resigned to accept an executive position with that company in New York, becoming vice-president of First National Pictures in 1922, in charge of business outside of the United States and Canada. He held that position until 1929, when Warners bought First National Pictures control. For the next four years he was engaged in exporting and importing of film, and returned to San Francisco in 1933 to represent General Register Corporation in that territory. In 1937 he became Pacific Coast manager, holding that post until Jan. 1, 1940, when he became president of the company, the position he now holds.

NO WAITING

EFFICIENCY *plus* SPEED!

Lightning-like action. Designed and constructed by America's leading money metering engineers.

MODERN DESIGN

Streamlined in beautiful black enamel and chrome plate finish. Designed especially for theatre use to harmonize with finest surroundings.

EASY TO OPERATE

Perfect working mechanism, strictly jam-proof. Simply depress the key representing total amount of admissions in that area of the keyboard designating the amount tendered and the correct change is instantly released through coin chute into cup.

Furnished with interchangeable Right or Left Hand Delivery. Holds a generous supply of pennies, nickels, dimes, quarters and half-dollars.

Make Change *Fast!* Eliminate Mistakes

Install THE JOHNSON LIGHTNING CASHIER

How many? This Johnson Lightning Cashier delivers the correct change into your patrons' palms and starts 'em toward the usher, tickets in hand, so FAST that your audience is inside and happy almost before they know it!

Best of all, this Johnson Lightning Cashier does the "brain work" as well as the labor. Subtracts the total admission from the amount tendered . . . returns exact change . . . stops cash loss . . . eliminates disputes with patrons who might otherwise be short-changed in the absence of this *automatically* accurate equipment.

See Your Theatre Supply Dealer
PROMPT DELIVERIES ASSURED!

Advanced Series JOHNSON LIGHTNING CASHIER

★ The Johnson Lightning Cashier (Advanced Series) illustrated above, will stop short change and over-change mistakes. Keeps customers happy. Encourages repeat business. Enables your box office attendant to handle rush hour crowds much faster with absolute accuracy and without extra help.

WRITE TODAY—without cost or obligation we will gladly send fully descriptive literature on the Johnson Lightning Cashier. Find out how quick, accurately-made change reduces shortages in box office receipts, actually PAYS BACK YOUR ENTIRE INVESTMENT through BIG SAVINGS year after year.

Get Full Details on Johnson Lightning Cashiers. Write

JOHNSON FARE BOX CO.

4619-4625 RAVENSWOOD AVE., CHICAGO, ILL.
50 CHURCH STREET, NEW YORK, N. Y.

The space of this article will not permit exploring all the paths and by-paths through which ingenious and enterprising management might throw additional protective measures around the box office. The point of this article is that it cannot be done with the present ticket. The very inception of any system of box office control, and the very essence of it, must revolve around, and be built around, a proper ticket, and in the new ticket there is certainly offered a most decided improvement over and advance over, in this respect, the old ticket.

The cost of the new ticket is only a few cents more than the old ticket. The cost of using the new ticket for the average theatre can only be five cents or 10 cents a day above that for the use of the old ticket. If the new ticket has the improvements and advantages over the old ticket that it is claimed, certainly it must be worth five cents or 10 cents a day more to the theatre.

★

THE LOCATION AND MAINTENANCE OF—

Hand Fire Extinguishers

A recognized necessity in many areas of a theatre, their value in emergencies is completely dependent on their maintenance.

by The Safety Research Institute

FIRE EXTINGUISHERS, to be instantly available for use at all times, must be properly recharged and inspected. The date of recharging should be noted on the tag provided for that purpose, along with the name or initials of the man doing the work. Fire insurance underwriters recommend that only recharging materials and replacement parts furnished by the manufacturers of the extinguishers be used in service work. Full instructions for recharging the various types of extinguishers are given on the labels, and they should be followed to the letter.

When the two and one-half gallon units are recharged, all parts should be washed thoroughly in water, and the water drained through the hose. The shell should be examined to make certain it is sound at the seams, for, after all, it is a pressure container. The head gasket and hose should be examined for signs of deterioration, and the strainer should be cleaned.

When the cap is screwed back on the shell, the worker should make certain that at least four threads are engaged. A small amount of vaseline may be placed in the threads to make the task easier, and facilitate removal for the next recharging.

All chemical solutions should be mixed in clean containers, and not in the shell of the extinguisher, and the container should be carefully rinsed before being used for a new solution.

Only liquid obtained from the manufacturer should be used in the vaporizing liquid type extinguisher. The use of commercial carbon tetrachloride, which may contain some water or chemical impurities, is likely to damage the interior of the extinguisher or, if used on live electrical equipment, endanger the operator.

DIRECTIONS FOR INSPECTING AND RECHARGING EXTINGUISHERS

Soda-acid:

Recharge annually. If exposed to temperatures below 40 degrees F., place in suitably heated cabinets. Do not mix anti-freeze crystals with the solution.

Foam:

Recharge annually. Anti-Freeze ingredients should not be applied to the solution, and if exposed to temperatures below 40 degrees, extinguishers of this type should be kept in suitably heated cabinets.

Vaporizing Liquid:

Recharge after use, and keep unit filled at all times. Test action of pump by discharging a portion of the liquid into a clean, dry, container. The test liquid can be poured back through the filler opening. Guard against overfilling. No lubricants should be used on the piston of this type of extinguisher, nor should any water be placed in it.

Loaded stream:

Recharge after use. Inspect annually to see if container is filled, and that hose and gasket are in good condition. Weigh carbon dioxide cylinder, and replace it if it has lost one-half ounce. Extinguishers of this type may be exposed to temperatures as low as 40 degrees below zero F.

Carbon dioxide:

Recharge after use. Inspect annually to note if seal is intact. Weigh the unit to make certain weight is equal to that stamped on it. Loss of 10 per cent in weight indicates the need for recharging.

Anti-freeze, pump tank:

Recharge after use. Inspect annually to make certain it is filled to the filling mark. Test pump action by operating pump for several strokes, directing the stream back into the tank.

Anti-freeze, other types:

Recharge after use. Inspect annually to see if the container is filled, and that hose, gasket, etc., are in good condition. If carbon dioxide is used for pressure, loss of one-half ounce in the weight of the cylinder is cause for replacing it with a new one.

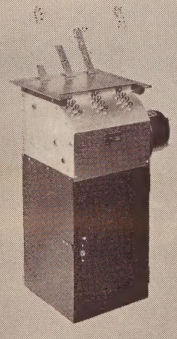
The Safety Research Institute has been in operation since 1937. Its purpose is research and education in the field of fire safety, and it is financed by manufacturers of safety equipment. A vast amount of educational publicity has been carried on by the Institute.

Cash Control Equipment . . . *Stops Violators of Cash Receipts*

Controlling Cash ...ELECTRICALLY

'TIMCO' ticket registers are quiet, fast and accurate. Your boxoffice CASH is controlled and protected . . . tickets can never be issued without being registered . . . 'TIMCO' is the 100% "Watch Dog of Your Cash Receipts."

12 Reasons Why 'TIMCO' Registers are the Finest in Cash Control Equipment



★ Scientifically laid-out key board.

★ Short positive action ball-bearing push buttons.

★ A ball-bearing, constant speed, non-sparking motor—AC or DC.

★ One key for all locks insures safety.

★ Self-sharpening knives.

★ Rustproof mechanism.

★ All-Steel case . . . as safe as a "safe" when locked.

★ Floating ticket-doors, perfect issuance of tickets.

★ Unit locking control—locks units not in use.

★ Silver points on switches . . . good for a lifetime.

Machines are constructed in 1 to 5 unit sizes . . . larger sizes custom-built to order.

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NATIONAL THEATRE SUPPLY COMPANY

THE TICKET ISSUING MACHINE COMPANY
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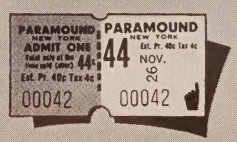
THE UNICON SYSTEM ...of cash control

Tickets are money! And, around the ticket is built the UNICON System of Cash Control.

Like paper money Unicon Tickets cannot be counterfeited without detection, cannot be "kidnapped" and passed-on without the theft showing-up. And, like paper money, Unicon Tickets must be redeemable for precious metal at the boxoffice "till."

UNICON . . . protects the exhibitor against violators of his cash receipts.

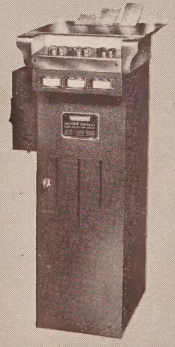
THE UNICON TICKET



The Unicon Ticket is perforated vertically — eliminates palming. Each ticket is preprinted, with a serial number, and is further printed, in the register, when issued to the patron. Unicon Tickets are available on water-marked stock with special identifying design.

THE UNICON ISSUING MACHINE

An electrically operated machine manufactured in units. Each unit is equipped with a non-reversible, tamper-proof counter. Every unit contains a printing element which prints the date and month of issue, on single tickets issued, and on the sale of 2 or more—up to 5, it prints in addition to the above, the number of tickets sold in the particular issue. Each unit's ticket capacity is 10,000 tickets per unit.



UNICON CASH CONTROL RESULTS

When the Unicon System of Cash Control is installed to replace your present system—BOX-OFFICE RECEIPTS INCREASE . . . this increase is due to the immediate saving of losses through "till-tampering".
THE UNICON CASH CONTROL SYSTEM IS 99% SURE—Never a Loss . . . Always a Profit!

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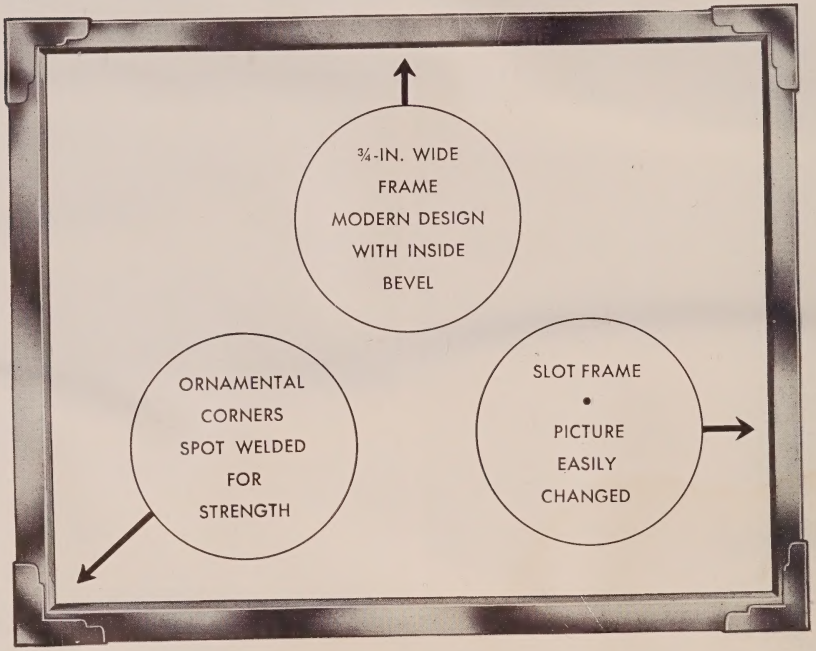

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How to Conserve Your Equipment

Reprinted from a booklet issued by the National Theatre Supply Company, and distributed as a public service to the Motion Picture Industry at large.

EDITOR'S NOTE: As the recommendations included here apply to any and all makes of equipment and seem of exceptional current value, the final publication of this volume was delayed so that they might be conveyed to our valued readers.

THE FOLLOWING recommendations on equipment conservation have been made available through the serious thought and cooperation of the manufacturing and service departments of the makers of: Simplex Projectors and Simplex Four-Star Sound; Hertner Transverters; G. E. Copper-Oxide and Simplex High Rectifiers; Peerless Magnarc and Simplex High Projection Lamps; Walker Screens; Bausch & Lomb Lenses and Reflectors; National Comfort Cooling; American Chairs; National Crestwood Carpet; National Super Service and G. E. Vacuum Cleaners; General Ticket Registers; Royalchrome Metal Furniture and National Rubber Mats.

If these recommendations help to maintain theatres at their greatest efficiency for the furtherance of public morale, we shall feel amply repaid for our part in this program.

PROJECTORS

Cleanliness

Keep all projection room equipment clean. Dirt and dust on equipment combine with excess oil, grease and air moisture to increase wear and maintenance. Clean equipment lasts longer and needs fewer replacements. Moreover, electrical and mechanical failures are reduced in clean projection rooms.

Lubrication

Use the specified grade and quantities of oil or grease according to the manufacturer's instructions. Oil or grease that is too heavy or too light will not lubricate properly. Equipment that is properly lubricated lasts longer.

Never lubricate equipment while in operation. Not only is there danger of getting the oil can caught in the gears, but excess oil will be spattered around. The oil level in the intermittent should be maintained at the "oil level" mark. Do not fill above this mark as the excess oil will be thrown out.

All gears in the projection and sound mechanisms, not otherwise lubricated, should have a few drops of oil applied occasionally. Rotate the projector by hand to distribute the oil. Pad rollers should be lubricated so that they are free to rotate to avoid flat spots.

Equipment Operation

Never turn the projector by the shutter shaft knob. This will damage the gears. Always turn the projector by the motor knob or flywheel.

Be sure all switches are off when the show is over. Leave all pad rollers, lateral guide roller and film gate open when the projector or sound mechanism is not in use or threaded, to avoid flat spots in the lateral guide roller, weakening of the film gate tension and possible damage if the projector is accidentally started.

Equipment Adjustments

Watch all equipment carefully and maintain the proper adjustments. If in doubt as to the proper adjustment procedure, consult the dealer from whom the equipment was purchased. Improper adjustments will shorten equipment life and increase replacements.

Film

Inspect and clean all film before running. Re-splice any weak splices and treat film tears properly. Weak splices and torn film may result in damaged film, if run through the projector. Oil on film picks up dust and dirt and contributes to scratching.

Watch film loops in both projector and sound mechanisms. Large loops cause film slap and film damage. Small loops cause unnatural bends in the film and excessive tension, resulting in torn sprocket holes and breakage.

Film Gate, Film Path

Adjust pressure pads for the minimum pressure that will give a steady, sharp picture. Make adjustments carefully to prevent damage to parts.

Keep the gate, all sprockets, guide rollers and pad rollers clean and free of film emulsion. Dirt and emulsion on these parts increase film wear and posibility of film damage.

Fire Shutters

Inspect mechanism fire shutters for proper operation. Make adjustments carefully, and if in doubt, consult the dealer from whom the equipment was purchased. Properly operating fire shutters prevent fires and damage to equipment.

Take-Up

Keep clean and adjust for smooth take-up throughout the entire reel. Improper adjustment will result in film pile-up in the lower magazine or breakage.

Sprockets, Pad Rollers

Watch all sprockets carefully. Hooked sprockets tear film. Replace or reverse (if possible) all sprockets that are worn to the point where the film hangs on to the teeth.

Adjust all pad rollers carefully to rotate freely without excess end play. Adjust the clearance for two thicknesses of film.

SOUND SYSTEMS

Amplifiers, Vacuum Tubes

Some amplifiers require pre-heating of tubes. Leave switch in "Fil" position at least as long as specified by the equipment manufacturers. Never turn immediately to "plate"; otherwise immediate failure or shortened tube life will result.

Operate all vacuum tubes in accordance with the equipment manufacturer's instructions. High or low voltage and high plate voltage and current decrease tube life.

Tubes that are microphonic or noisy in volume control amplifiers should be saved to try in power amplifiers. Save inoperative vacuum tubes for salvage purposes.

Power Distribution Panels

Inspect fuses, switches, busbars and wire connections. Tighten any loose connections and fuse clips. On knife switches keep contacts burnished; don't let pitting start. Loose connections and pitting cause heating and shorten the life of the equipment.

PROJECTION ARCS

Make sure that the lamphouse is kept thoroughly clean both inside and outside. The carbon ash, drippings, etc., should be removed reguarly once a day, if required, especially from the shafts, bushings and gears of the arc control operating parts.

At least once a week, tighten up all electrical connections to the arc controls. Every day before the show, clean the mirror with soft tissue or a clean cloth. Do not turn the mirror around in its holder as in a very short time the entire surface will be pitted. Check the mirror-retaining clips for the proper holding tension for when they are too tight, it might cause cracking due to expansion.

If condensers are used, they should be cleaned before each show, and the retaining rings checked for proper holding tension.

All moving parts inside the lamphouse should be oiled slightly with light projection oil, but never over-oiled. The carbon jaw holders should be taken out at least once a week and thoroughly cleaned. For emergency use, an extra negative and positive jaw assembly should be on hand.

The arc control motor bearings should be oiled once a week with only a few drops of light oil, as over-oiling causes most failures. The arc control commutator should be cleaned at least once a month with a clean rag with a little vaseline applied to it. If the spaces between the commutator bars are "caked" with grit, use a tooth pick to remove the grit and then wipe the entire commutator perfectly dry.

The brushes in the arc control motor should be checked at least once a month and if they are wearing unevenly, or have rough hard spots, new brushes should be installed. Where the arc control gearing mechanism has packing boxes for grease, clean out the old grease at least once a month, and flush with kerosene, then repack with new grease.

The arc exhaust dampers and ducts from the lamphouses, should be cleaned thoroughly of carbon ash, dust, etc., at least once every three months because any blockage, no matter how small, will affect the proper burning of the carbons, cause pitting of the mirrors and produce a gradual accumulation of ash within the lamphouse.

RECTIFIERS

Copper Oxide Type

Make sure that the rectifier is not operated above the recommended rating.

Once a year, or oftener if necessary, raise the top section of the rectifier assembly and blow out accumulated dirt and lint in the rectifier stacks. This will insure proper ventilation and cooling.

The ventilating fan in copper oxide rectifiers requires periodic inspection and lubrication from one to two times a year.

See that the rectifier is located in a well-ventilated, cool spot. The flow of air through this equipment should not be restricted by being placed too close to other equipment or by placing material on top of the rectifier.

Make sure that the carbons and other lamp projection equipment are in proper operating adjustment so that excessive voltage or current is not required.

Bulb Type

Check bulb sockets to make sure they are clean and not corroded or pitted. Sandpaper can be used to remove corrosion in order to make a good contact.

Tighten bulbs in sockets securely. Check every few weeks as bulbs may become loose. Clean anode clip (connection at top of bulb) and connection to make certain of good contact. Replace clip connector, if corroded, or if clip has lost its tension.

Check power input to the rectifier to insure that the AC voltage supply corresponds to the transformer rating.

Check filament voltage to make certain proper voltage is applied to the bulb. Voltages should be maintained as closely as possible to the recommended values. Variations of over 10% should be corrected.

In some cases, a slight increase in bulb life may be obtained, if filament power is turned on before load is applied. In other words, if 30 to 60 seconds leeway can be allowed, the filament will come up to operating temperature before it is called upon to furnish an output. This can be accomplished either by a switch or a time delay relay in the anode or plate circuit.

When replacing rectifier bulbs, always use the same type and capacity as recommended by the manufacturer.

MOTOR GENERATORS

To get the most out of this equipment, remember that cleanliness is next to godliness. Keep commutators clean and remove all dirt before sparking becomes disastrous. Increased brush life as well as increased commutator life will be the direct result.

Check alignment of motor and generator shafts and keep couplings tight. Misalignment of shafts and loose couplings causes vibration, increased wear and parts replacements.

Dirty and arcing commutators cause heating and pitting, shortening their life and increasing maintenance costs. The contacting surface of each commutator brush should be periodically examined so that commutator and bearing wear is held to a minimum.

If the generator is on a concrete floor, particular care should be taken in sweeping so that abrasive dust from the concrete will not get into the bearings.

Oil bearing housings should be flushed out every six months and refilled with fresh oil of the proper grade.

If a ball bearing motor generator has been out of service for a time, the bearing covers should be removed, the old grease cleaned out and replaced with new grease.

All outside connections on ballast rheostats should be checked. Remove the cover from the rheostats periodically, and check the bolted connections to the resistor material.

LENSES AND REFLECTORS

There is practically no deterioration in projection lenses, if they are handled carefully whenever it becomes necessary to remove the lenses from the projectors.

Use only a good quality lens tissue to clean lens surface in order to avoid scratching.

Reflectors especially must be kept clean in order to prevent pitting.

SCREENS

Dirt on the screen shortens its life, reduces the brilliancy and definition of the picture and contributes to poor sound quality.

Once a month remove free dust from the sound holes by vibrating the screen. Simply tap the lower border enough to set up a slight vibration. This will loosen dust clogged in the holes and help maintain better sound.

Every 30 days, brush off any free dust collected on the face of the screen, using a soft, long-haired, special screen brush. Be careful not to rub the screen with the brush as any pressure applied will produce a mark.

A vacuum cleaner may be used on the back of a screen, but if used to clean the front, the nozzle must never touch the screen material. Hold the nozzle about two inches in front of the screen, because any metal, especially aluminum, if rubbed even gently on the screen, will leave a dark mark which cannot be removed.

Do not rub the screen either with a dry or damp cloth, soap and water, cleaning solutions, or spot removers. Any rubbing is likely to leave a mark.

Provide free air movement through the screen. If horn baffles or other objects in the rear are too close to the screen, the passage of air will be blocked and uneven deterioration of the screen will result. Dead air behind the screen may cause mildew or sweating of the screen in hot, damp weather. Normal ventilation should always be provided behind the screen.

Make sure that draw curtains and stage draperies do not drag across the face of the screen.

THEATRE CHAIRS

Inspect your chairs regularly. Make a check list of the points covered here and go over the house chair by chair. Use your check list as a means of checking the progress of your maintenance program. It will take some time to do this, but you will know what needs to be done and can check on accomplishment.

Floor Attachment

If floor standards become loose, a wracking strain is thrown on other parts of the chair and will contribute to loosening of backs, seats and hinges. Keep the standards tightly fastened to the floor. If the concrete is poor in spots, a quick-setting cement, such as Anchorite, will frequently solve the problem. If the concrete slab is thin, anchorage can be obtained by using a long toggle bolt; or, if the underside of the slab is accessible, a plate can be placed on the underside and a long bolt run up through the floor and standard. Keep your floor attachment tight.

Back and Seat Attachment

Examine by shaking the backs and seats of all chairs. Tighten up all loose attachments. Use the wrench and screw driver with care. Hasty and careless

operation frequently burrs screws and deforms nuts, leaving cutting edges that will damage clothing.

Hinges

If the hinges are of the mechanical type secured to the standards with bolts, or the hinge parts themselves assembled with bolts, the hinge assembly, as well as the attachment to the standard, should be tightened up. Open and fold the seat and listen for noise. Theatre chair hinges, like other moving parts, need lubrication occasionally. Always remember that a little lubricant at the exact point where it is needed is a great deal better than applying it wholesale and soiling patrons' clothing. The manufacturer of the chairs will gladly tell you how to lubricate your chairs and what to use.

Covering Materials

Imitation leather may be cleaned by washing with warm water and a mild soap, such as Ivory or Lux Flakes. Then rinse and dry with a clean cloth. Do not use other cleaning agents, as they may damage the material. Wash imitation leather thoroughly every six months. Washing more frequently may remove the hardened protective surface coat.

To prolong the life of imitation leather, apply a coat of wax after cleaning. This will protect the surface and help keep the material clean for a longer time. Use Duco No. 7 Wax for this purpose.

Bubble Cleaner made by the L. C. Chase Company is recommended for cleaning fabrics. This should be done about once a year. Remove all dust and loose dirt with a whisk broom or vacuum cleaner. After diluting the cleaning fluid in accordance with the directions, pour a small quantity into a flat pan and work into a thick foam with a sponge or stiff brush. Apply the foam in moderate quantities to avoid soaking the fabric, rubbing vigorously against the pile while cleaning. Remove the foam with brush, sponge or dampened cloth, rubbing with the pile. Brush in the direction of the pile with a whisk broom while the fabric is drying. When dry, brush against the pile to restore the nap.

In any house, a portion of the chairs in favored locations are used much more than others. You can considerably increase the overall life of your chairs by a periodic interchanging of seats. In home communities, the cutting of covers, usually seats, is a common nuisance. Keep a small supply of covers of the various sizes and recover cut seats. Where the damage to an imitation leather seat cover is not extensive, patching can be done. Patching is not a permanent repair, but it prevents the hole from being enlarged so that filling material can be removed.

Finishes On Metal and Wood Parts

For cleaning finished metal parts, use DuPont No. 7 Wax. This not only cleans the finish, but leaves a film of wax as a protective coating. Do not use commercial cleaners.

For wood parts, a neutral mild soap and water are recommended. After washing, wipe with a clean wet cloth and dry. DuPont No. 7 Wax and Cleaner may also be used.

Clothing Tearing Hazards

Not all of your patrons will treat your equipment considerately. They may damage chairs by mistreatment so that hosiery and clothing can be torn. Clothing damage costs money and creates dissatisfaction. Check carefully for clothes-tearing hazards and repair them.

CARPETS

Remove gritty dirt. The presence of gritty material in the pile of any carpet may cause considerable loss in wear. Removal of such materials before they get ground down into the pile will add years of life to your carpet.

The only satisfactory method for removing such grit is by the use of a good vacuum cleaner.

Avoid rug wear-outs. Where certain areas receive more than average wear, as in front of settees, tables, etc., protect them with smaller rugs or rubber mats. If possible, allow for changes in furniture arrangement or for the reversibility of the rug. By doing this, traffic is distributed over the whole rug and it may be kept free from worn spots for a long time.

A considerable increase in wear life of stair carpet may be obtained, if it is laid properly. In stairs, experience shows that the back may wear away quicker than the pile. By laying stair carpet over a ⅜" rubber underlay glued to the steps with rubber cement, with a felt pad glued to this with linoleum cement, making certain that both underlays cover the nose of the steps, stair carpet life may be considerably increased.

Remove spilled materials as soon as possible. Oily and greasy materials may be removed with solvents; other materials with clear water. Use water with such things as beverages, food or other water-soluble materials, blotting the pile dry when through. By such treatment, color changes may be minimized.

The best surface cleaner that can be used is made with solvents and a dry cleaner soap. Recommended solvents are "Sanilac," "Renuzit" or "Stoddard's Solvent." The soap recommended is "Di Glycol Laurate S." A ½ to 1% solution of the soap in the solvent makes an excellent cleaner for removing soily spots or general soil.

VACUUM CLEANERS

Recommendations for vacuum cleaners include the normal care given to any piece of electrical equipment.

Lubricate the fan bearings as recommended and check the carbon brushes occasionally, replacing when worn down short.

If the cleaner is used constantly, it is advisable to send the motor at least once a year to a repair shop for checking and overhauling.

Clean the vacuum cleaner tank and bag regularly to obtain maximum service from the cleaner and thus reduce running time to a minimum.

The bag should be cleaned every day or at least every other day, depending upon the amount of cleaning for which the cleaner is used.

Handle the electric cord on your vacuum cleaner carefully because it is full of copper—a precious metal today. Don't yank the plug out of its socket by the cord. Grasp the plug itself. Always wind the electric cord loosely so that you don't damage the fine wires inside. Turn off the current before you pull out the plug or contacts may burn.

RUBBER MATS

When moving a rubber mat NEVER grasp it by the nosing. If a mat must be moved from one location to another, it should first be rolled and then carried to the new location.

NEVER drag a rubber mat without first rolling it up. No mat material manufactured can stand that strain.

To clean rubber mats, soap and water are satisfactory. Strong cleaning solutions have a deteriorating effect on rubber. After the mat has been cleaned and dried at its location, it can then be rolled back to one end and the floor dried beneath it. The other end of the mat then can be lifted and the balance of the floor dried, making it unnecessary to move the mat.

METAL FURNITURE

To preserve the leatherette or genuine leather seat covers on metal furniture, use saddle soap or any good alkali-free soap such as Ivory for cleaning. Put the soap on with a little lukewarm water and wipe off with a dry cloth. This preserves the covers and keeps them pliable. Where furniture is in constant use this cleaning should be done at least once every 30 days.

For the chrome on metal furniture, clean with saddle soap or any other alkali-free soap. Be sure the metal parts are wiped dry after cleaning.

Simonizing the metal parts will add considerably to the durability of the chrome finish.

AIR WASHERS, BLOWERS

Air Washers

During hard operation in hot weather, check at least twice a week, the water pump, makeup piping, scrubber and eliminator plates, flooding and spray nozzles, float valve and strainer. The scrubber and eliminator plates should be cleaned thoroughly at least once a week especially in dry, dusty climates, by scraping clean the caked mud off the surfaces, by scraping them down with a water

hose. A putty knife should be used where the mud sticks to the surfaces.

The copper screening in the suction strainer should be cleaned by the use of a stiff-haired brush when the holes appear to be blocked. The float valve should be checked for proper adjustment to the water line because, if it is at the improper level either too much water will flow into the tank or not enough.

The flooding and spray nozzles should be checked to see that all the holes are opened and if they are blocked by impurities in the water, a fine wire should be inserted in these holes until the water spurts freely.

When the washer is not to be used for any length of time, it should be covered with canvas or other material to prevent the accumulation of dust within. When the washer is in operation, the tank should be thoroughly cleaned at least once a month by completely drawing the make-up water and flushing the tank with a hose.

In cold or freezing climates, the washer tank, if remaining idle for any length of time, should be completely drained of water and the plug in the bottom of the pump removed to prevent freezing up or bursting.

Blowers

The blower should be checked at least once a week and the grease cups on the bearings turned down or refilled with grease. The set collars on the shaft at the bearings should be oiled with light motor oil once a month to prevent wear.

The pulleys on the blower and motor should be checked for proper alignment at least once every three months. Improper alignment of these pulleys will surely wear out the belts.

The drive motor bearings should be oiled with # 10 motor oil at least once a week. Any marred parts on the blower housing should be painted to prevent rapid corrosion or deterioration of the metal. In case the blower is shut down for any length of time, # 10 motor oil should be spurted inside the grease cups and over the bearing blocks and set collars.

A canvas cover should be placed tightly over the blower and drive motor to prevent accumulation of dirt, dust, moisture, etc., within. In case the blower stands idle for some time, the tension on the belts should also be slightly released by loosening the motor base.

TICKET REGISTERS

Once a month replenish the thick oil (grease) in the motor oil cups.

Check the carbon motor brushes monthly and install new brushes, if necessary.

Once a week clean out the fluff from the machine interior. Ticket stock gives off a fluff and unless this is removed, it will get into the mechanism and gum it up.

Place a drop or two of thin oil every week on the cutting edges of the knives and the knife hinges. Be sure to wipe away any surplus oil.

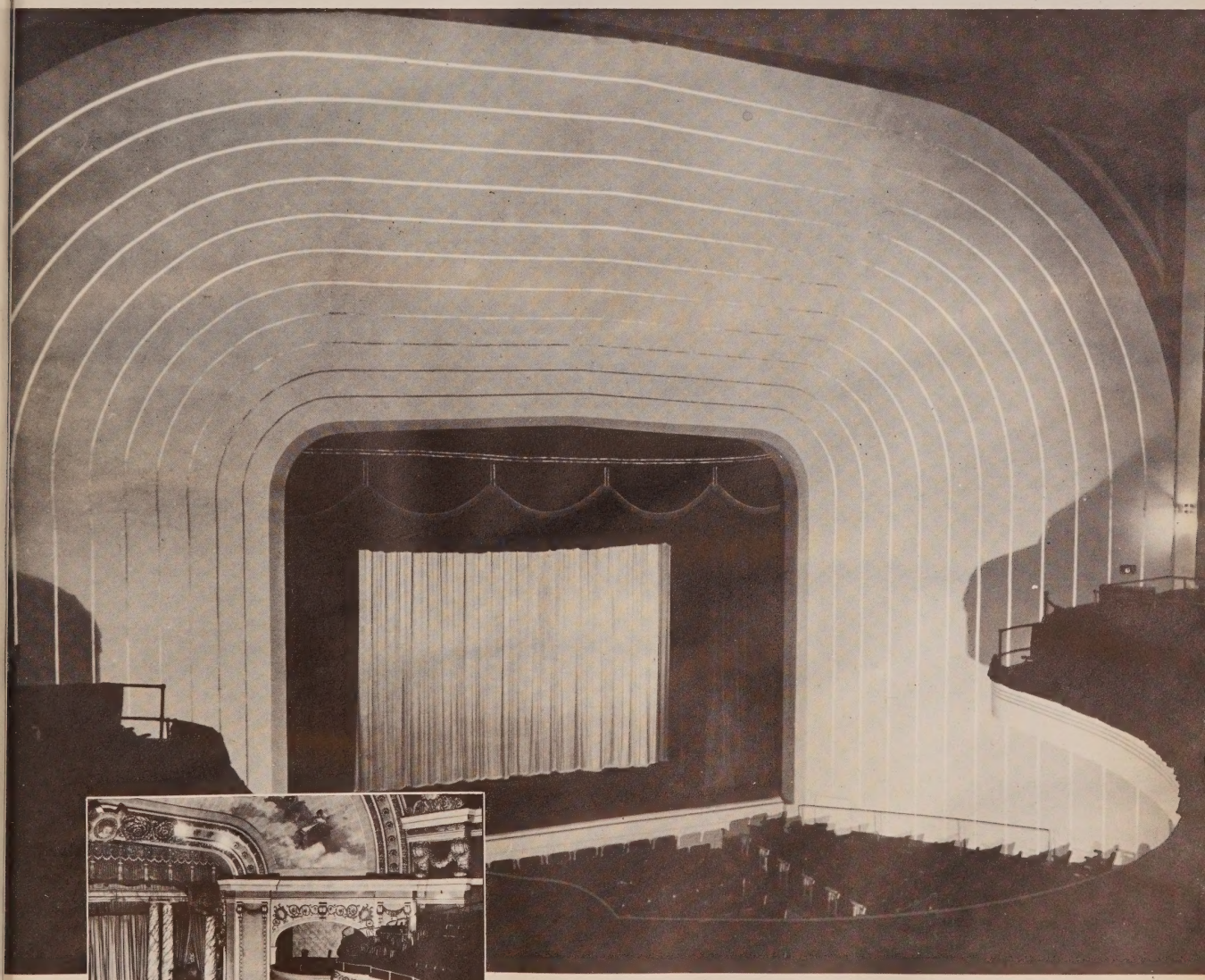
A frequent source of trouble in ticket machines is the sticking of ticket flaps caused by metal polish becoming deposited in the ticket flap hinges. If permitted to remain, this metal polish will corrode the hinges. Kerosene is not only something of a lubricant, but it is also a solvent. Once a week, oil ticket flap hinges with kerosene, wiping away the surplus with a cloth.

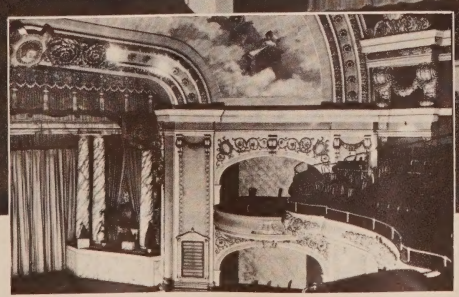
★

Most theatre owners acknowledge that planned renovating and remodeling is as necessary for profitable theatre operation as the buying of film for their screen. We have had statements from exhibitors in many parts of the country who definitely point to box-office increases brought about by a renovation program. Each year there are more owners becoming conscious of the fact that they must give their patrons the best that money can buy, surroundings that are as comfortable as their own homes, luxuries that are better than they have at home, and excellent service. We have presented here several renovations which took place within the past year.

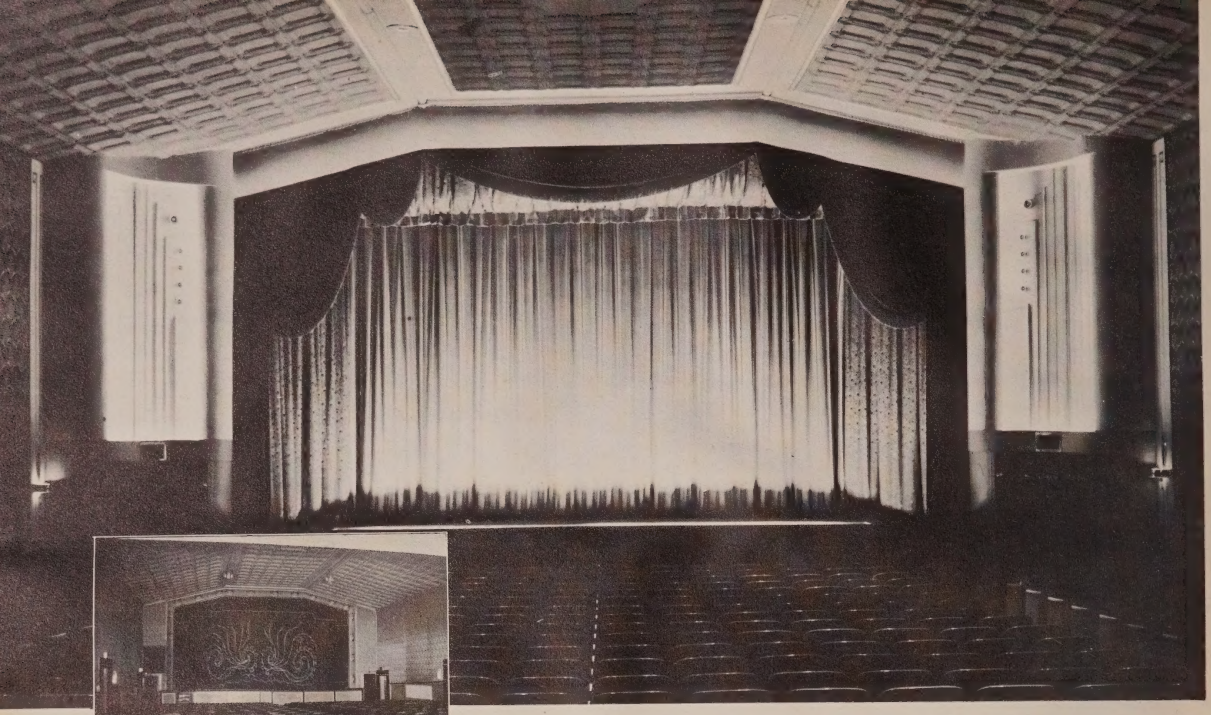
CATALOGING THE NEW IN DESIGN AND EQUIPMENT • 1941 •

Remodeling AND Renovating

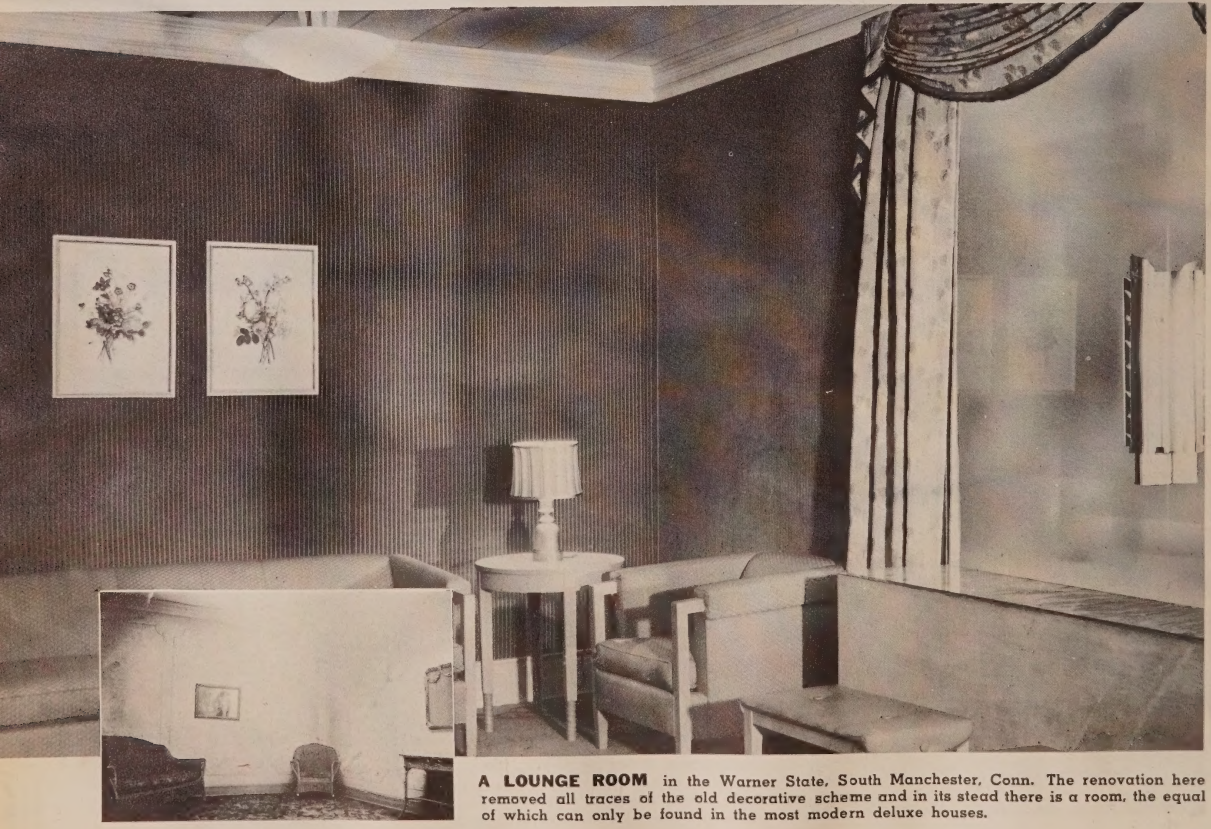




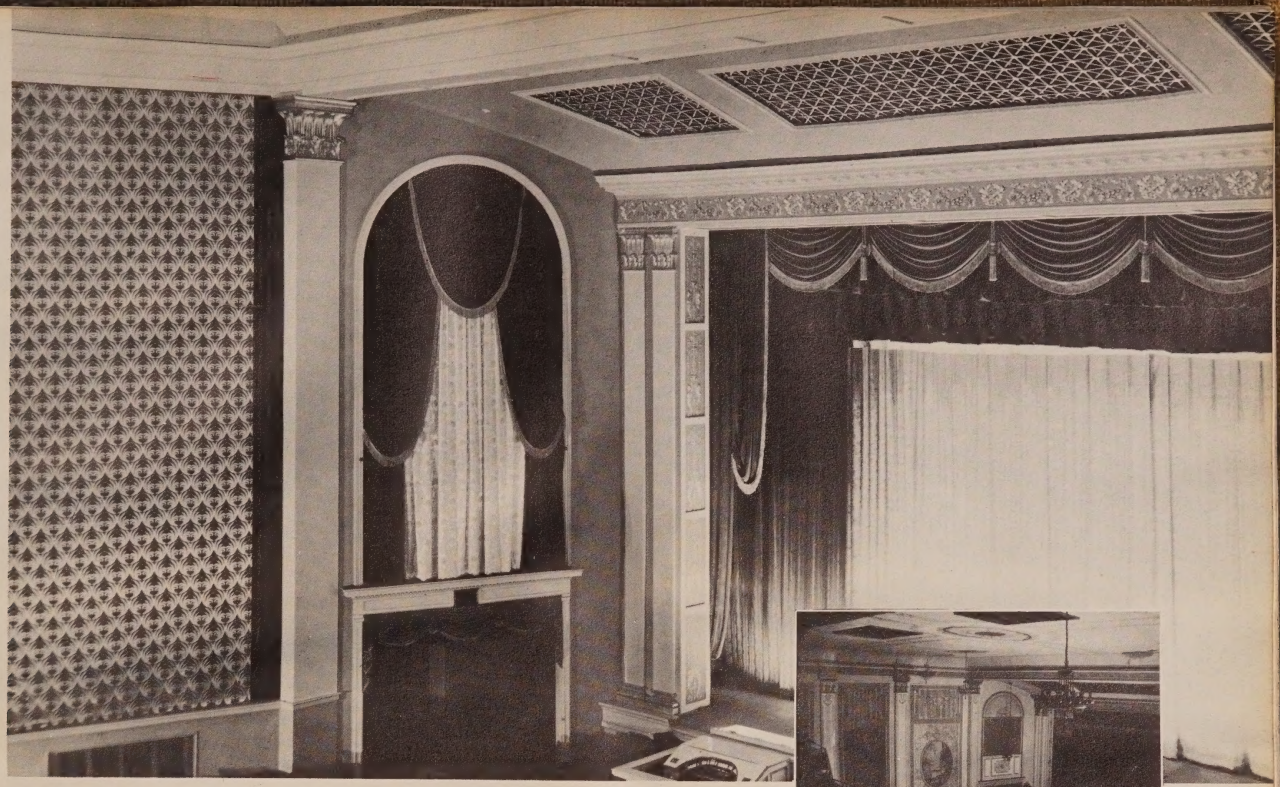
WALDORF THEATRE, Lynn, Mass., a Warner house, has lost none of its original structure through renovating. The ornaments, gingerbread and boxes were removed and the walls stripped down to the plaster. In the completed job are clean functional surfaces currently popular in the modern theatre designing.



RIALTO THEATRE, Bridgeport, Conn., another renovation in which the original metal ceiling and square walls have been retained. Glazed surfaces have been added with recessed decorative lighting. Repainting and new drapes helped revitalize the house.

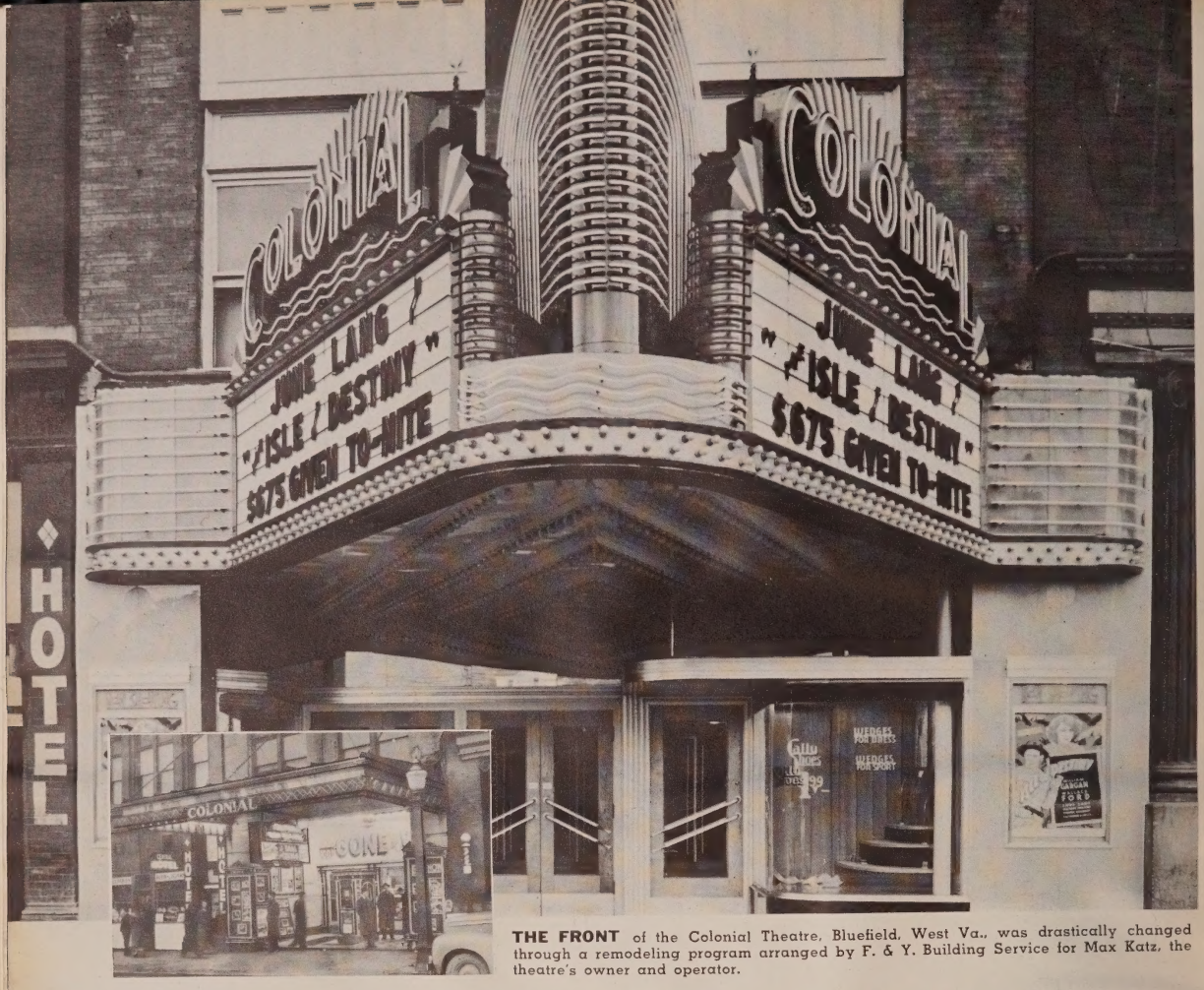


A LOUNGE ROOM in the Warner State, South Manchester, Conn. The renovation here removed all traces of the old decorative scheme and in its stead there is a room, the equal of which can only be found in the most modern deluxe houses.

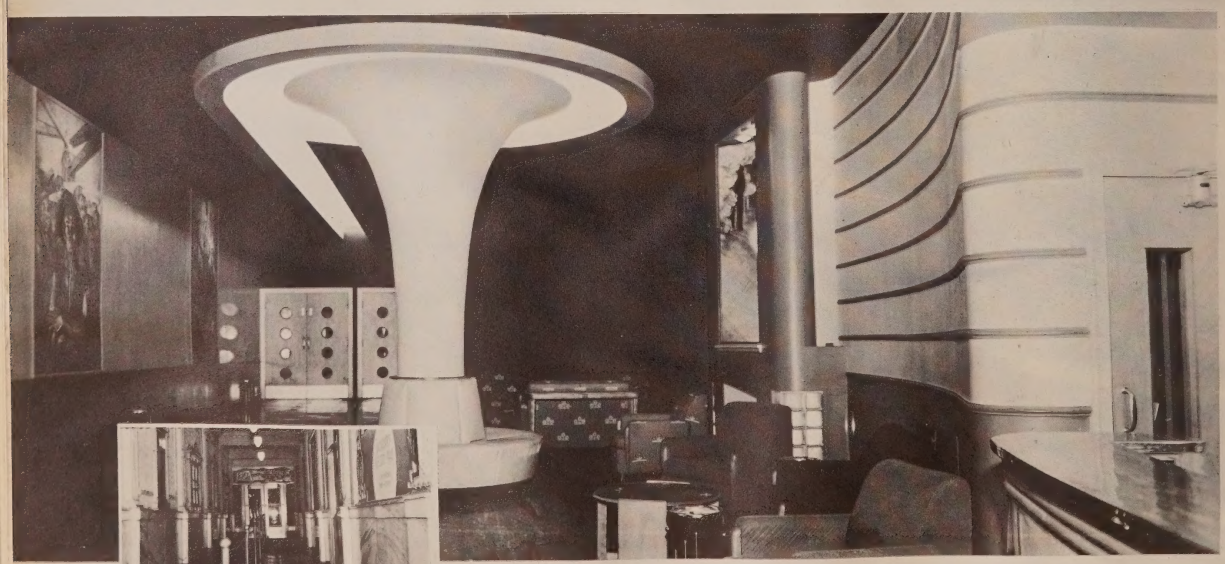


THE SIDEWALLS of the State, South Manchester, Conn., are still the same architecturally, but the repainting, new wall fabrics, drapes, and general redecorating have given them the appearance of completely new walls.

THE LOBBY of the Warner State, South Manchester, where a good example of the adaptation of an American style is shown. This scheme is not Colonial but an American Federal style. Note the American Eagle and Star motif.



THE FRONT of the Colonial Theatre, Bluefield, West Va., was drastically changed through a remodeling program arranged by F. & Y. Building Service for Max Katz, the theatre's owner and operator.



THE LOBBY of the same theatre now becomes a lounge room as well. The narrow, barren passageway is no more. Modern lighting, floor covering, furnishings, and more space have converted it into the pleasant place shown.

The renovation program in the theatre shown on these two pages was handled entirely by the engineering department of Warner Brothers under the personal direction of Herman Maier. The "before and after" views show the contrast between the house as it appears today and the house as it appeared before renovations were made. Credit is due Riseman and Lercari, who did most of the renovating for Warner Bros.

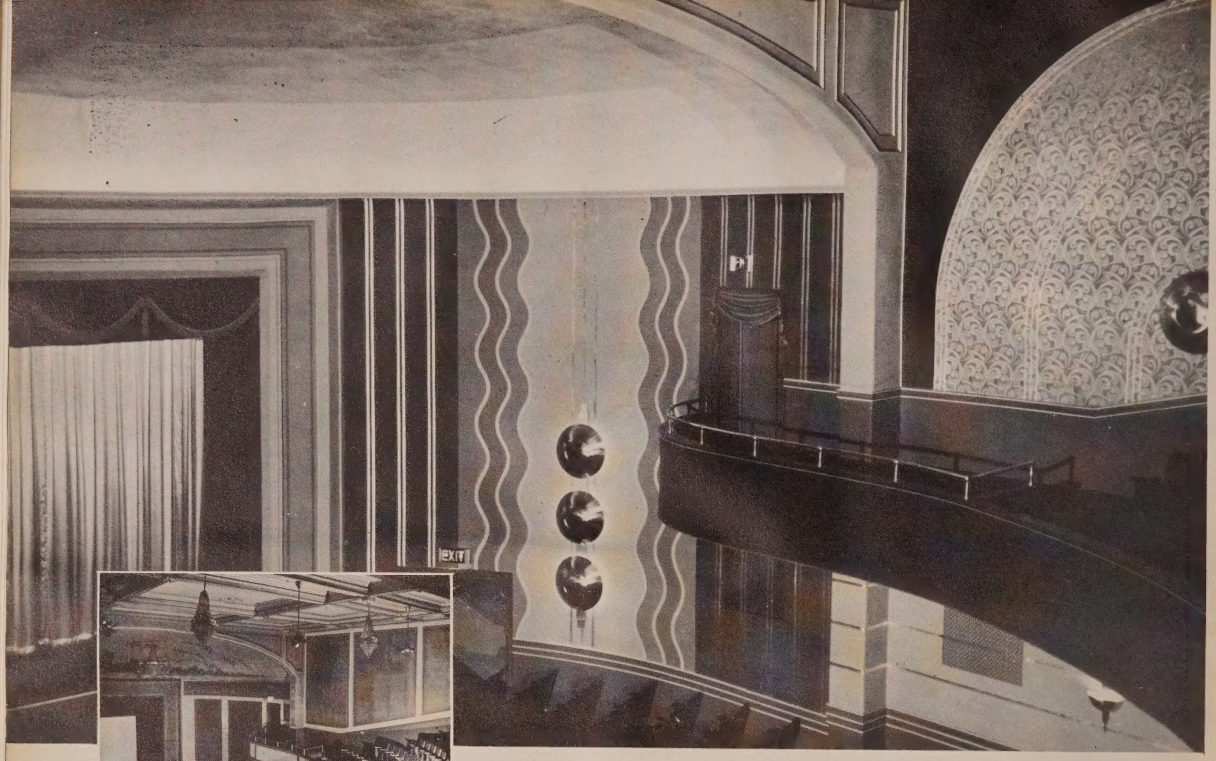
CATALOGING THE NEW IN DESIGN AND EQUIPMENT • 1941 •

THE RENOVATED

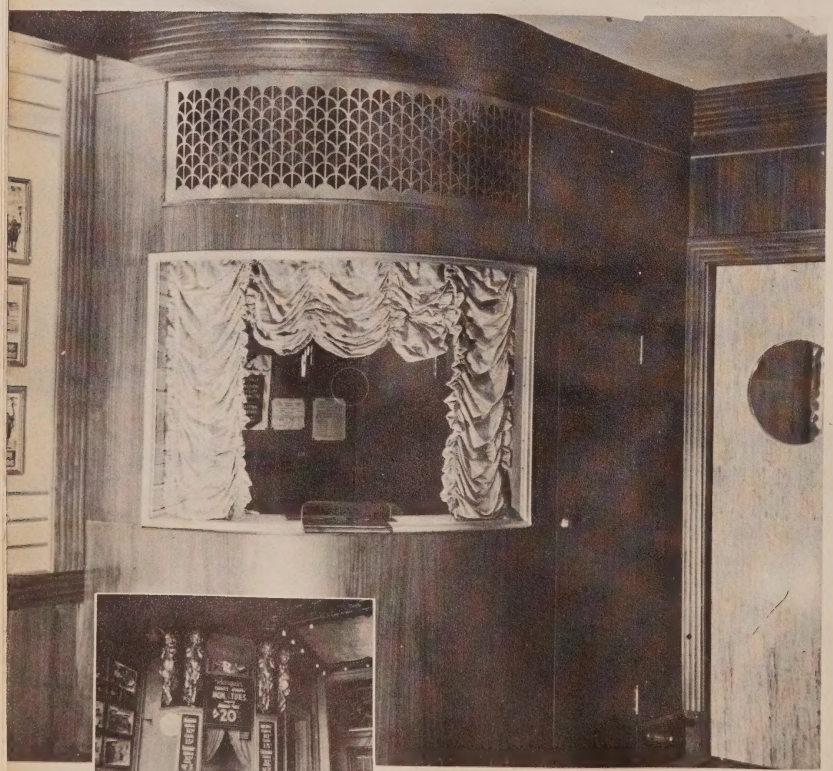
Rialto

SOUTH NORWALK, CONN.

THE FRONT, showing a contrast between a daytime "before" view, and an "after" view made just before the evening show. The marquee is only a renovation and not a complete new installation. The lower facade was fully refinished.



THE AUDITORIUM in contrasting "before" and "after" views showing how redecorating without structural changes can transform an antiquated house into a more modern cinema.



THE BOXOFFICE with the "gingerbread" removed is one of the radical changes made in the lobby.

REFERENCE FACTS:

RIALTO THEATRE

SOUTH NORWALK, CONN.

Owner: Warner Brothers

Seating Capacity: 880

Cost of Renovation: Not available.

Air Conditioning—Exhaust blowers. Installed by Typhoon Air Conditioning Co.

Carpets—Crestwood. Manufactured by Alexander Smith & Sons Co.

Chairs—Ideal. Manufactured by Ideal Seating Co.

Curtain Controls—Vallen. Manufactured by Vallen, Inc.

Decorator—Riseman and Lercari.

Display Frames—Manufactured by Riseman and Lercari.

Draperies and Stage Curtains—Manufactured by Riseman and Lercari.

Generators—Robin Imperial. Manufactured by J. E. Robin, Inc.

Lighting Fixtures—Manufactured by Ruby & Pickwick Metalcraft.

Projection Lamps—Ashcraft. Manufactured by C. S. Ashcraft Mfg. Co.

Projection Machines—Simplex. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by Greater New York Carpet Co.

Screen—Hurley. Manufactured by Hurley Screen Co.

Sign and Marquee—Fabricated and erected by Claude Neon of Connecticut.

Sound—RCA. Manufactured by RCA Mfg. Co.

Sign Letters—Wagner. Manufactured by Wagner Sign Service, Inc.

Supply Dealer—Continental Theatre Association.

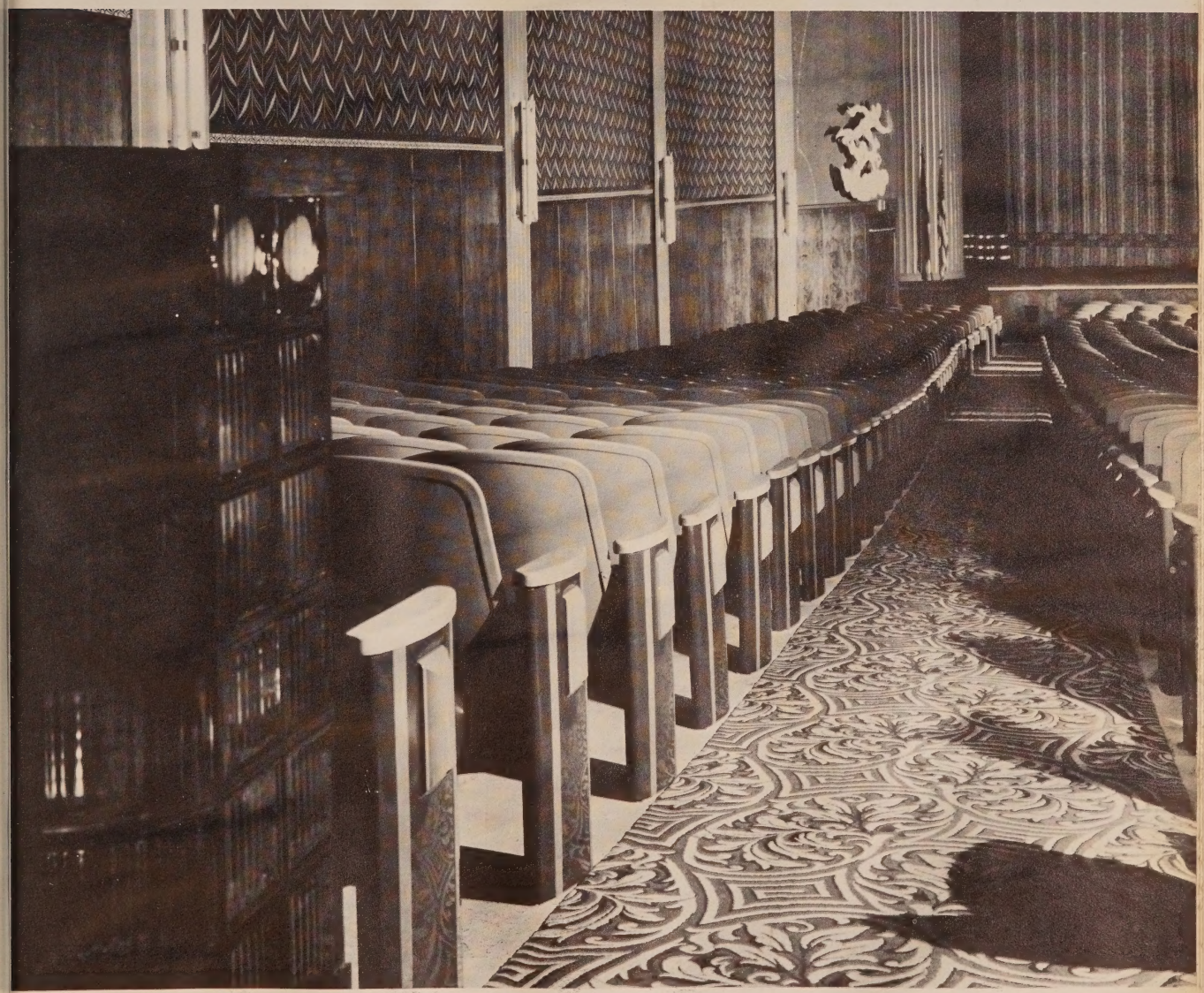
Ticket Register—Manufactured by General Register Corp.

CATALOGING THE NEW IN DESIGN AND EQUIPMENT • 1941 •

THE RENOVATED *Strand*

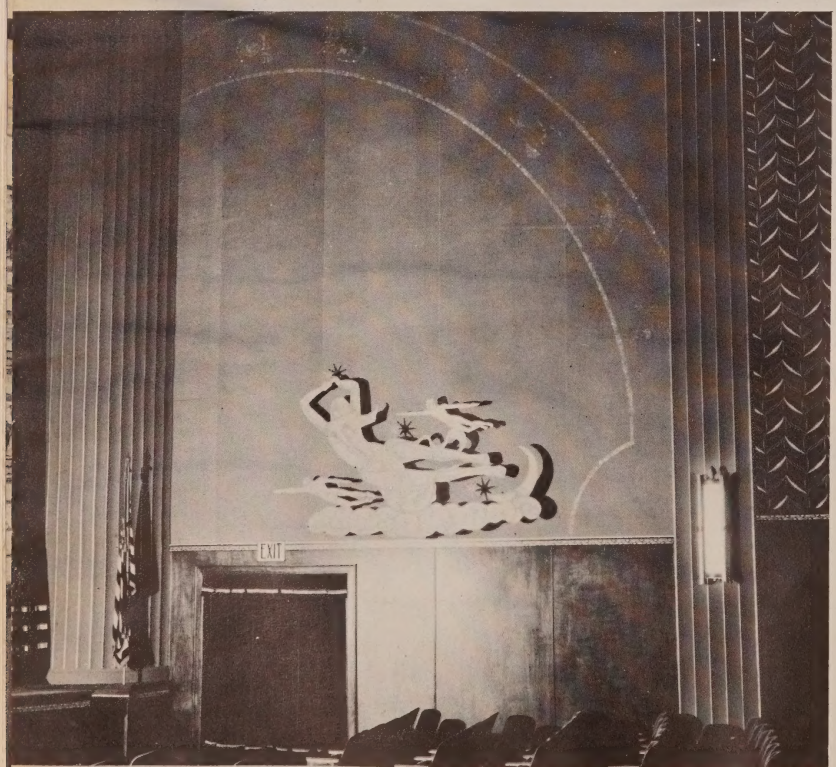
ROME, N. Y.

Here we present another Kallet house which has been given a renovation treatment, again maintaining the Kallet policy of always keeping its theatres up-to-date and appealing to patrons, this one has been gone over from top to bottom. The Kallet organization heartily endorses a systemic program whereby each of its houses receives a periodic touching up to insure pleasant surroundings for its patrons. It pays!



THE AUDITORIUM showing the side wall treatment. A veneer panel wainscot, modernly designed fabric applied over rockwool and new wall lighting fixtures all help toward the attainment of a more modern setting.

THE PROSCENIUM with its fluted columns and other simple decorations was designed so that nothing would detract from the screen presentation. The wall treatment mentioned before should again be noted here.



A PORTION of this side wall showing the exit door and the modern mural which graces the wall immediately above it.

REFERENCE FACTS:

STRAND THEATRE

ROME, NEW YORK

Owner: M. J. Kallet

Architect: Sidney Schleman

Seating Capacity: 1500

Renovating Cost: Not available.

Acoustical Treatment—Nu-Wood ceiling and fabric over rockwool on sidewalls. Nu-wood manufactured by Wood Conversion Co.

Air Conditioning—Refrigeration system. Manufactured by Carrier Corp.

Carpets—Mohawk. Manufactured by Mohawk Carpet Mills, Inc.

Chairs — Manufactured by Heywood-Wakefield Co.

Construction Material—Structural glass manufactured by Libbey-Owens-Ford Glass Co.

Curtain Controls—A. D. C. Manufactured by Automatic Devices Co.

Decorator — Capitol Motion Picture Supply Corp., and Belgium Art Studio.

Draperies and Stage Curtains—Red and egg shell. Manufactured by Capitol Motion Picture Supply Corp.

Furniture—Manufactured by Lloyd Mfg. Co.

Lighting Fixtures—Manufactured by Charles J. Winston Co.

Projection Lamps—Manufactured by C. S. Ashcraft Mfg. Co.

Projection Machines—Simplex. Manufactured by International Projector Corp.

Rubber Mats—Manufactured by O. W. Jackson Co.

Rectifiers—Manufactured by General Electric Co.

Screen—Manufactured by Hurley Screen Co.

Sign and Marquee—Fabricated and erected by Flexlume Corp. of Buffalo.

Sign Letters—Adler. Manufactured by Adler Silhouette Letter Co.

Sound—RCA. Manufactured by RCA Mfg. Co.

Supply Dealer—Capitol Motion Picture Supply Corp.

Ticket Register—Manufactured by General Register Corp.

Too Much Ink

AND NOT ENOUGH "THINK" IN ADS

A competent authority on motion picture advertising gives his views on how to "steal" the public's attention by "headwork."

by Ben H. Grimm

WITH EACH INDIVIDUAL THEATRE AD straining, socking, and screaming desperately in its tooth-and-claw fight for attention against every other theatre ad on the amusement pages of today's newspapers, the din of the battle is terrific, and the sound of its discord is resulting in more and more confusion and apathy on the part of prospective patrons.

What to do? We, for one, would like to be sure of the answer—if there is one that always will work. The man who can come across with such an answer, definite and guaranteed, can write his own ticket for one of the biggest jobs in the movie industry, or in the world of general advertising.

However, there *are* some definite methods of gaining individuality in big space competition, of standing out from the crowd. These practical, tested, and effective means of getting more for your money in advertising are available to any theatre man with the astuteness to recognize and use them for his own.

To one who analyzes hundreds of amusement pages of newspapers from all over the country, it is utterly amazing how sheep-like in their advertising are theatre men almost everywhere, especially so when the big dividends of a slight touch of individuality are realized.

CAN ANYBODY GIVE a sensible reason why, for instance, in a town where heavy, black ads are the accepted practice, *everybody* uses black ads, making of the entire amusement ad section a smeary expanse in which nothing stands out? That sort of a spot is the softest touch of all for the man who simply reverses general practice. Imagine what a sock your ad would get on that black page if it were an island of white surrounded by that sea of smudge! This is so simple and effective a method that one can hardly believe that it isn't used more generally. Perhaps it is because each theatre is afraid to step out, figuring that "if the opposition does it, so it must be right."

Step out from the crowd, and you'll see your same-space ad jump right out of the page.

Of course, a like principle holds true of the all-light amusement pages required by some metropolitan dailies. Here your black-against-white effect can be approximated by use of solid half-tone ads, against which there is no restriction.

ANOTHER METHOD of getting attention to your message over the other fellow who is using the same space, is the use of the fairly new "step" ad. The practice of using these irregularly shaped ads is growing tremendously among advertisers in the general field, and could be used much more extensively than it is by theatres.

These "step" ads get away from the regular rectangular layouts by being narrow at the top, and pyramiding down in one or two-column steps to wider space. The number of the steps and their sizes are often controlled by the requirements of the newspaper, each of which seems to have its own regulations on their use.

An extremely effective adaptation of the "step" ad was the use by RKO in the New York newspapers of a giant reverse "L" for the opening of Walt Disney's "Dumbo". This was a reverse "L" that ran down the entire two columns of the right hand page and about five inches deep across the bottom of the page. It stole the entire page—at a fraction of the cost.

AND HERE JUST A parenthetical technical word about the "step" ads: The step or steps are usually on the left hand side of the ad; only occasionally on the right, and most often then only in smaller ads. This is because newspapers make up their pages carrying advertising from the base comprised by the lower right hand corner. This applies to both left and right hand pages.

Some newspapers say that they do not accept these irregularly-shaped ads, but there's often a way! In several big cities these iregularly-shaped ads, in large lineage, were sent to all the newspapers. Several of the newspapers refused to run them. Two of the papers did. Immediately all the other papers had a change of heart, and offered to run them,—too late, in this particular instance. Therefore it's an even bet that if one newspaper in your town accepts them, it won't be long before the other or others are tempted to a change of heart.

STILL ANOTHER WAY of getting the jump on your advertising competitors is to get an inside track either with the advertising departments or the make-up men of your newspapers. If you can establish the proper contacts, as some theatre men have, you can learn just how much space your competitors are using on certain days, and adjust your own schedule upward accordingly. One theatre man we know has this contact so solid that he gets a late tip-off, and ups the size of his ad at press time, preparing his copy right in the composing room of the newspaper, thus getting the break in position.

A further plan of making your own advertising different from everybody else's is the cultivation of a "style". Of course, this is most effective over a long haul, and pays biggest dividends when you are selling your theatre as an institution, rather than trying to sell each attraction on its own merits as it comes along.

The most striking and eminently successful example of this "style" advertising is that of Radio City Music Hall. Day after day, week after week, the ads look much the same, varying only in size from pre-opening big space down to directory cards. Done in the "Tiffany" style of dignified restraint, always with the same family of light-face type, and *never* with a reverse plate of any kind, they have become an expected and anticipated part of every amusement page in New York.

SO, WITHOUT CONSIDERATION of the all-important copy angles, illustrations, and technical layout of an ad's subject matter, it seems that there is a limit of four ways in which you can give individuality to your ads:

Color
Shape
Style
Size

Naturally, you must be your own judge of timing, and of what combination of the means available meets your individual conditions.

All of the foregoing relates principally to bigger-space ads. In the earlier days, big-space ads did a grand job of standing out merely because they were big. They dominated by size alone, until everybody came up in size, and today even the biggest ads have to have something besides size if they are going to sell tickets. It's a fact that in some spots folks have become so "advertising wise" that when a theatre goes overboard with space on a picture they wonder why all the heat's being turned on. Some of them actually question the attraction's real worth.

However true that may be, nothing will ever change the fact that a good big ad is better than a good small ad.

When we reach into the realm of the smaller ad, we enter an even more highly competitive and more extensive field.

Obviously, on a small-ad page a big ad stands out. But there are far more theatre budgets in the country that demand small ads than allow for big ones.

So, WHEN A THEATRE MAN is restricted to small space, he has to substitute even more "think" for his lack of "ink". It is the opinion of this writer, based on what he sees on the nation's amusement pages, that it is in the realm of the small ad that space is not being used to the best advantage.

True, few theatre men can be expected to be advertising experts; but every theatre man has at his command the work of the highest-paid and best-qualified experts in the field: the press book.

Why is it, then, that one so often sees such slovenly misuse of the material offered at practically no cost by the distributor? Why, for a minor but widespread instance, will a theatre man, who wouldn't dream of shearing off a drape with a saw, leaving a ragged edge to show, do exactly that to a press book mat, and shove it in the paper? Why will he try to squeeze a reverse cut meant for much larger space into a one or two-inch ad, oft times actually cutting off part of a star name or a title? Why will he do any one of the thousand and one careless things he does that makes his small ads look sloppy?

Some will tell you that it has to be done because the producers have no regard for small-space ads in their press sheets, that they sluff 'em off; that they load even the smallest ads with useless minor credits, trademarks, and whatnots that have to be cut off.

There's some truth in what they say, and there's a lot to be said on the producers' side. That particular argument has been going on for a long time, and isn't settled yet.

Because of lack of imagination or ingenuity, the fact remains that the average columns of small "directory" ads presents such a monotony of appearance, color, and content that the shopping reader assumes with one tired look that "There's nothing but the same old stuff at the movies."

Could it be that this is true because each one-inch ad is trying to out-display the other? Could it be that there is so much "display" that each ad is lost in the mass of black?

Could be.

IT IS THE WRITER'S belief that the small ad would be much more effective if it would admit its inability to win by display alone, and do its job with information, type of picture, intriguing copy line, important credits, and that's all. Putting a flea-sized picture of the star's head in a small ad does little good, and only adds to the confusion.

To the writer's mind there is nothing more important in the physical appearance of an ad than good taste. And good taste does not preclude the lustiest kind of illustration and copy-appeal you want to use.

The theatre man of today is fortunate in having at his fingertips all of the advertising thinking that has been done on a picture. This is handed to him on a silver platter in the press book, and the help he receives is far more extensive than the retailer of a product receives in any other line of business. Naturally, such must be the case with any product as perishable as a movie, which is only on sale for one or two days or a week or so, and where there is no opportunity for long-range advertising to establish a demand. A movie campaign is a few-shot campaign that has to do its job now or never.

There have been instances where an exhibitor has dug up a successful advertising angle that wasn't touched in the press book, but those instances are the exception.

WHAT WE'RE DRIVING AT is the fact that, with such an abundance of material available to him, the theatre man so often uses it to so little advantage. In the press book are anywhere from a dozen to three dozen or more ads. Few theatres ever have use for more than four or five different ads. This means that, in those four or five ads, he can combine all of the best points contained in all of the ads in the press sheet. It gives him the opportunity of selecting only the cream of the material, and the creamiest of all should be in those small daily ads that have to do such a mighty big job.

Ben H. Grimm is advertising manager for RKO-Radio Pictures under S. Barrett McCormick, director of advertising, publicity and exploitation. He was recruited to the movies some 25 years ago from the rewrite staff of the New York Evening Journal. His first movie job was writing scripts and publicity for Metro, and for some years he was reviewer for Moving Picture World and Wid's Daily. His career embraces terms as advertising manager for Selznick, Warner Brothers theatres, and Universal. He was one of the first men in the industry to introduce American advertising and exploitation methods in England and Scotland, and he has been intimately engaged in the advertising campaigns of many of the industry's biggest pictures.

By nature of this business the press book can never be all things to all theatres. There are too many different types of theatres in differing localities catering to different clienteles. A first run downtown generally uses a different type of advertising from that used by the smaller house. Different first runs differ; and different smaller houses differ. The attempt is made in press book advertising to cover the widest possible range of needs, the greatest possible scope of tastes, appeals, angles, and physical layout. The press book cannot go overboard on any one avenue of approach. While it may put all its eggs in one basket representing the central appeal, all of the eggs are differently hued.

Therefore, proper use of the press book material must be left entirely to the theatre man's knowledge of his particular requirements. He must know what part of the general appeal he can point up for his particular situation. He must be able to judge the appeal best suited for his own time and place. Often an exhibitor finds an angle in the picture that merely is touched upon lightly in the press book, but because of some particular local condition it far outshadows anything else. The press book maker can't know all local conditions, and it is up to the local man to find that angle, if it exists, and go to town. Sometimes a particular star or featured player may be not so hot in one territory. If that star is featured heavily in the press book ads, the smart manager will tone it down, and feature someone else in his own advertising. Some certain types of pictures may be "poison" in one locality and gold mines in another. Whichever angle the press book takes, the ad man must see that his own ads stress the angles best suited to his own needs.

NOT ALL OF THESE THINGS can be foreseen by the makers of the press book, and it is here that real showmanship takes the upper hand.

And showmanship can't be learned from text books or articles in the trade press: it is acquired almost by instinct and developed largely by experience.

Any real showman knows his own book of rules. But the most important rule in the most successful showman's book is the rule that all of the rules can sometimes be broken successfully.

In fact, it is altogether possible in this quick-shifting business for a man to do an excellent week-in-week-out advertising job; abiding by all the rules; watching all the "musts" and mustn'ts"; following all the dictates of successful practice, and wake up some morning to find that his competitor has pulled a nifty that upsets the entire apple cart of "dos" and "don'ts" to sensational results.

PERHAPS THE MOST STRIKING illustration of this stepping out of line to box office glory was Universal's experience some years ago with "Frankenstein". Up

ALTEC SERVICE CORPORATION

Altec Service Helps the Showman Help the Nation

SHOWMAN, you're important in the winning of the war: the nation and its government know it. You're important because the nation comes to you for entertainment. What you purvey keeps the nation cheerful, determined, informed, level-headed, courageous.

But you can help win the war in another way. You can help to save the precious metals and other materials the government needs.

In your projection room are mechanisms that use all the materials the government urgently needs to have conserved. You can save these materials by keeping every item of equipment, every part, running at high efficiency. You can keep the machinery from running down, from wasting away, from deteriorating. These are the sinister preludes to breakdowns and costly replacements.

Today, doing this is not merely good business. It is not merely intelligent self-protection. It is a patriotic duty.

In helping you save the equipment in your projection room from needless replacements—from needless deterioration—the Altec Service organization can be your most valued ally. For here, in Altec Service, is an organization whose training, experience and accumulated store of scientific knowledge, is dedicated to that single purpose—*to make every mechanical part do its job at full efficiency for its full service life.* And in doing this, Altec Service keeps at its best the quality of sound: your theatre thus renders the finest possible entertainment to your entertainment-hungry community.

Make Altec Service your trusted ally. Depend on Altec Service, the high caliber of its men, their years of training, their resourcefulness and their devotion to your theatre's interests. Depend on Altec *not only* for service in the projection room—consult Altec freely on *all* mechanical problems that mean—"keep them showing."

No matter where your theatre is, an Altec engineer is near, ready to serve you. Altec Service, the largest organization of its kind in the nation, blankets the United States.

Let Altec Service help *you* help the nation win the war.

ALTEC
SERVICE CORPORATION

250 West 57th Street • New York City

District and branch offices: Philadelphia • Boston • Atlanta Chicago • Cincinnati • Detroit • Kansas City • Los Angeles Newark • Baltimore • New Orleans • Dallas • Cleveland Pittsburgh • Minneapolis • Denver • San Francisco • Seattle Portland, Ore.

ALTEC CORP.

until that time anything even remotely suggesting unpleasantness was definitely taboo in theatre advertising. But there was no way of hiding what "Frankenstein" was all about. So the powers that be decided to take the risk and go all out on the "horror" angle in the advertising. You know the results. Since then there have been other "horror" campaigns that have been successful; others have flopped dismally. In fact, there have been so many "I dare you" and "horror" campaigns lately that the boys in the gallery are beginning to give that kind of treatment the bird.

Another more recent example of shifting the attack is the case of Metro's "A Woman's Face", starring Joan Crawford. All of the advertising prepared on this picture had carefully avoided any illustration showing, or any headline reference to, the leading character as a disfigured woman. It was believed to be strictly non box-office. A Detroit circuit theatre man with a hunch got permission to try out a no-holds-barred "scarface" campaign, showing Joan with a terribly disfigured face, and it was terrific. Naturally the "scarface" advertising was made available to everybody immediately.

A third instance of hurdling precedent was Warner Brothers' campaign some time ago on "Midsummer Night's Dream". Rightly, the men behind that campaign felt that any illustration of the subject matter would not do their great picture justice. So here we had the spectacle of an entire ad campaign without a single illustration from the picture or star head to be seen. You remember how successful it was.

These are but a few of the many instances on record where success was achieved by upsetting tradition.

But the success won once in a while by a campaign that jumps the traces cannot be taken as surety that it always will work. The screens of the country are haunted by the shadows of too many pictures on which it was tried with dismal failure. True, the pictures themselves were so far off the track that they needed desperate measures.

What we're trying to stress is that, while a paramount need in successful advertising is to be "different", the risk is always present of being so much "different" as to defeat the desired ends. Yet that need of doing something "different" is always there, needling us with its insistence, goading us sometimes to the point where we go overboard with a splash of printer's ink that blots out good sense.

Possibly instead of trying to be "different" we should strive rather to give a fresh, new, unique, timely or clever twist to "the same old stuff".

Yes, "same old stuff" is right. There have been so many plays, books, pictures written, and so much dramatic material used over the years that there is bound to be similarity among plots. There are just not enough entirely *new* ideas to go around. But it isn't new *ideas* that are needed, it is the fresh treatment of the established ideas. Perhaps the oldest, and the newest and most successful picture idea, is "he" and "she", and something to keep them apart. That's been the formula for most of the world's biggest successes. All it needs to be fresh and new is treatment. And if in our advertising we can reach a freshness of *treatment* we've gone a long way toward winning more theatre customers.

As to the subject matter of motion picture advertising—boy, you've got something there! A half dozen ad men might each write an ad about the same picture, each with a different angle, and every one as good an ad as the other. There are as many different opinions as to what constitutes a good ad as there are people talking about it. But every showman knows a good ad when he sees it, when it's finished and in proof form. It's before that that the argument's hottest.

And one can't be arbitrary about what constitutes a good ad, either. So, as soon as you get beyond the billing values of a picture—stars, title, perhaps director, producer or author, you're on your own.

We know one successful circuit man who believes that any ad is a good ad that shows a dame against a lamppost. He's dealing with that sort of clientele. But we know many others who realize that the dame-against-the-lamppost type of advertising will lose them half their potential customers.

Everybody has his own opinions about successful movie ad angles, but we'll stack this one against 'em all:

People are interested in other people. Folks will always respond to "who, what, they are more interested in "who"; sometimes in "what"; sometimes in "why", etc. Any ad that gives them any one or all of those mentioned things in proper proportion starts out with solid appeal.

The ability to choose which one or which combination of those things to stress, and how strongly, is the advertising man's "nose for news". If his average of right decisions is high, he's good . . . and if his average is low—he's fired.

In the opinion of the writer a good advertising man—a good *theatre* advertising man, especially, keeps himself as young in heart as the majority of his customers. He never loses the common touch. He doesn't shut himself up in that closet under the balcony stairs that he calls an office. He's out mixing with the people he's trying to sell seats to. He listens and *hears how they talk and what they talk about*, and makes mental notes. There are more potentially good copy lines and ideas flying around in the conversation of a group of high school kids, for instance, than there are in a dozen meetings of the Better Films Committee. There is more to be learned from youth-appeal sources in magazines, newspapers, radio, and other places than there ever will be from the old fogies.

We're in the business of appealing to the masses, and the masses don't talk with a Harvard accent. We've got to know intimately the folks we are trying to reach, and speak right to them in the straightest possible line, and on the same level.

That's what most good press sheet ads attempt to do . . . to give you ads that will appeal to the majority of folks everywhere.

What use you make of what you are offered is entirely up to your understanding of what is going to carry furthest, for you.

★

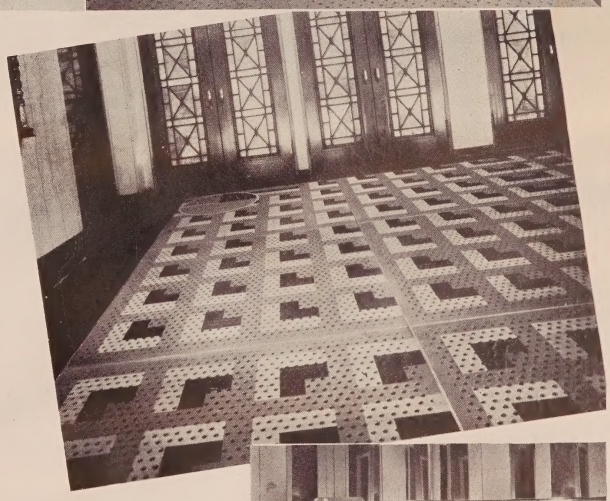
PURITAN *Rubber* MATS and TRENT *Sheet Rubber* FLOORING *for Star Performance!*

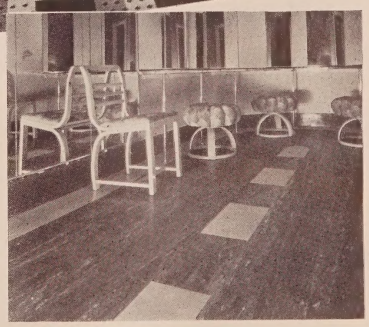
Utility and beauty are combined in PURITAN Rubber Mats. Theatre operators everywhere recognize the value of an attractive entrance and today it is not necessary to sacrifice appearance by using drab colorless mats.

With many colors to choose from, unlimited combination of designs can be obtained that will add interest to the lobby. Puritan Rubber Mats are made to give many years of hard service under the severest conditions of theatre traffic.

Puritan Rubber Company specializes in the manufacturing of Rubber Mats and Sheet Rubber Flooring and many theatres all over the United States testify as to the lasting quality of Puritan Rubber Flooring Products.

SEND FOR SAMPLES AND DESCRIPTIVE FOLDER.





● *The superior wearing quality of TRENT Sheet Rubber Flooring and its attractive appearance appeals to theatre owners as an economic investment wherever floors are subject to hard wear. TRENT Sheet Rubber Flooring will prove the ideal floor covering—easy to clean—smoldering cigarettes and stains are easily removed leaving no permanent injury.*

AMERICAN TILE & RUBBER CO. • TRENTON, N. J.

Associate of PURITAN RUBBER MANUFACTURING CO.

Manufacturers of

"AMTICO" RUBBER TILE FLOORING—Marble & Terrazzo Effects "TRENT" RUBBER FLOORING By the Roll, Plain and Marbleized Colors

"PURITAN" RUBBER MATS & MATTING—Plain & Designed Effects "PURITAN" RUBBER STAIR TREADS AND NOSINGS

PROBLEMS AND THE SOLUTIONS TO GOOD *Theatre Pest Control*

Only good housekeeping and constant vigilance in applying the proper preventive methods, can protect against infestations.

by J. Edwin Sameth

THE PUBLIC is immeasurably more pest conscious today than ever before. It will be conspicuous by its absence from poorly illuminated and dingy restaurants which give off an air that maybe, yes, probably, there are live, moving objects in the kitchen besides the help. It will positively patronize again and again the gas station with shining rest rooms and, just as positively, stay away from those places that aren't. In short, it demands clean, wholesome, surroundings.

So it is with theatres. People just don't happen to become regular patrons of a theatre by chance. They are induced to come back again and again by the quality of the picture, the attention paid to their comfort while there, and the very tangible feeling they have of being in a clean and healthful environment.

For those theatres located in cities and urban districts the problems of pest control are solved by reputable exterminating service companies. The procedure is as follows:

1. An inspection and estimate is made of the theatre by the service company.
2. If the estimate is acceptable, a contract is entered into which provides
   a. a regular, un-varying, and systematic treatment of the theatre building, including seating, for the correction and partial prevention of rodent or vermin conditions,
   b. extra or emergency treatment beyond the fixed schedule for conditions which cannot be foreseen.
   c. which is to cost so much a month on an annual basis, subject to mutual satisfaction.

BECAUSE OF THE NUMBER of theatres so treated under this plan this service is rendered at a cost below that which an individual theatre would incur if it performed the service by its own internal housekeeping personnel, provided, of course, that the theatre produced as efficient a result as the service company.

In this article we are mostly concerned with those outlying theatres that do not have this service at their dialing tips and who, because of their location, must necessarily fend for themselves.

The best advice would be to start from scratch, (not too literally, please) and find out just what condition the theatre is in from a pest control standpoint, so, therefore, let us begin with the seating. The real problem here is the control of bedbugs. Contrary to some public expressed thought that they "come in the wood", or they "just happen", bedbugs infest some theatre seats because they are brought in by the patrons, and because we hope to continue having patrons, we must make allowance for a certain few non-paying guests.

And so we come to a figure, "the percentage of infestation". This figure will vary with the location of the theatre; for instance, as to neighborhood and character of patronage and type of seating. A good average figure, and one to use is .7 to one percent infestation (for theatres having internal pest control maintenance). If the percentage is running much lower than that, orchids to the theatreman and the housekeeping crew, if much higher, watch out at the till.

Two methods of arriving at each theatre's percentage figure are hereby suggested:

a. Stretch two parallel pieces of string from two seats on the first row, extreme left or right side as preferred, and run them diagonally to two seats or the back row on the opposite side. The distance between the two strings should be so adjusted that the total number of seats enclosed will be 10% of the total orchestra seating. (See Fig. 1). Turn up all such enclosed seats. Or

b. Stretch one string from a seat in the first row directly back to the corresponding seat in the last row, the distance from the aisle adjusted so as to mark off 5% of the orchestra seating. Do the same on the other side 10% of the seats marked off between aisles and strings. (See Fig. 2). Turn up all such enclosed seats.

Now that we are ready to inspect these samplings of the total seats, let us be sure of just what we're looking for. Bedbugs make their presence known in three principal ways, viz.:

1. As an adult, a flattish bug, having an oval contour, approximately one-quarter inch in length.
2. As a cluster of white oval eggs about one-sixteenth inch or less in length.
3. As a discoloration of brown spots, much like fly specks, only heavier, caused by the bug's excretions.

Any or all of these evidences of the insect's presence may be at hand.

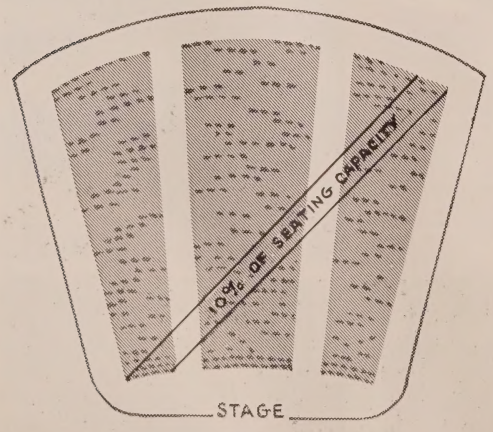


FIG. 1.

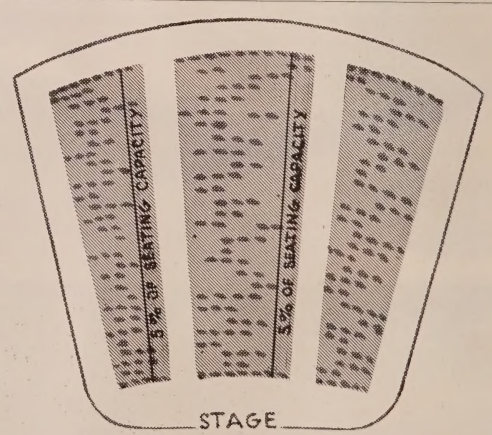


FIG. 2.

Typical insect pests: Flea, Bedbug, Clothes Moth, Carpet Beetle, and Cockroach. The relative sizes to which each grows is given in the line scale under each.

Let's look at the first seat. With a flashlight we examine the front lip of the seat where some generous soul has parked his gum. Gum offers an ideal harborage for bedbugs. Carefully examine the points where the seats rest on the hinged supports. In cases where the seat is upholstered, look at space between upholstery and seat bottom. If the seat is upholstered, pay special attention to any lapped-over upholstery material which usually occurs at the seat corners. All this is done while the seat is raised. (See Fig. 3)

Then lower seat, and closely examine area under arm rests, (the most likely of all places). (See Fig. 4) Similarly examine all seats in that row between strings and go to the next row back. First, examine the rear of the seats you have just left in the row in front, particularly the space where the upholstery meets the frame, and then look at points where brackets support the back of the seat. (See Fig. 5). Thus complete your inspection of the first row seats when the examination from the second row is finished. Look at every seat between the strings, noting aisle and seat location. Repeat the procedure in the balcony (if any) so as to arrive at a correct sampling.

For discussion's sake, let's assume that the theatre has a capacity of 1,500-1,000 seats in the auditorium, and 500 in the balcony. Thus 100 seats in the auditorium and 50 in the balcony would be examined. Suppose in the total of 150 seats one found three infested locations, thus there would be two percent infestation in the sample (3.00/150=2%). If the percentage held good all over the house, and by all odds it will, there are 30 seats which are doing their best to keep patrons out of the theatre. And if the house fills eight or nine times each week, one can begin to appreciate the value of the work and trouble just gone through.

WHAT TO DO ABOUT IT?

The first thing is to purchase a small electric sprayer capable of adjustment to a fine concentrated mist, or else get a hand operated, "continuous spray type". ordinary piston sprayer. Buy a drum of any one of the well known liquid insecticides, and systematically go to work. Every seat must be sprayed (preferably starting immediately after the house closes at night, so as to get the maximum aeration before the next performance). Treat every seat in the house in the same manner as when you inspected the sample, viz:

1. Treat the lip of the seat while it is in a raised position.
2. Treat the wads of chewing gum (if any), and then remove them with putty knife.
3. Treat the areas where the seat is fastened to the hinged support.
4. Treat especially any lapped-over upholstery at the seat corners which form natural pockets.
5. Lower seat and treat under arm rest.
6. Spray the juncture point of seat back with standard.
7. From next row, spray juncture point of seat back with seat frame.
8. Spray areas where seat back is supported by brackets.
9. Wipe off seat (this removes excess spray material and thus permits more complete ventilation and aeration).

The life cycle of bedbugs in the middle Atlantic States averages about four months from egg back to egg stage, so therefore, the schedule of regular maintenance treatments should be adjusted to conform. In order not to throw the other cleaning schedule completely off, more frequent treatments of lesser numbers of seats fits in better with the average theatre. Thus, if Sunday night is our regular "date" for pest control work, then in the theatre already referred to as accommodating 1,500, 100 seats should be thoroughly treated once each week on a rotary schedule, covering them all about once every four months.

Caution: If there is carpeting near heavily infested seats, look it over carefully, and treat it very thoroughly as eggs easily drop off seats, and hatch from the carpet.

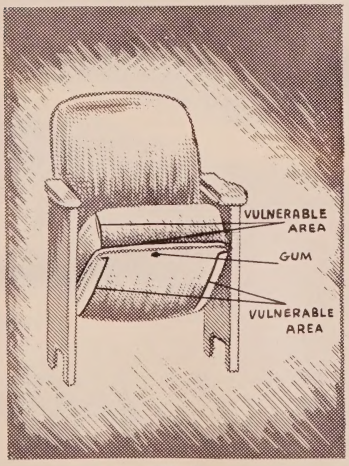


FIG. 3.

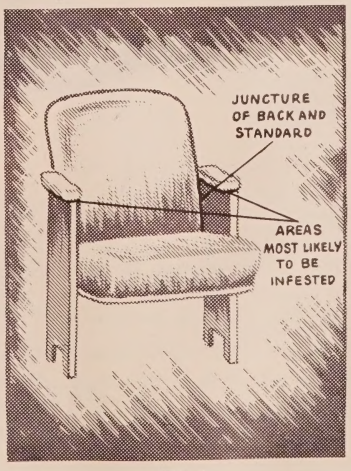


FIG. 4.

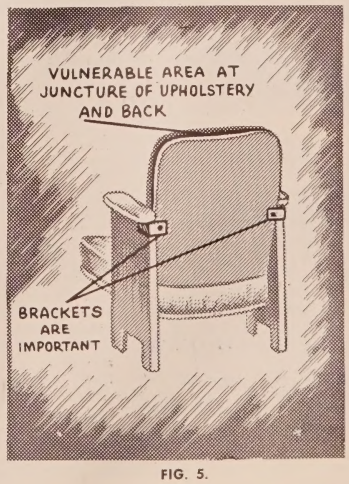


FIG. 5.

GENERALLY SPEAKING, the resistance of different types of seats to infestation, due solely to their inherent construction, is as follows, with the more resistant mentioned first, the next more resistant mentioned second, and so on.

1. All veneer chair (seat and back)
2. Veneer chair (with upholstered or "squab" seat)
3. Insert panel backs (with upholstered seat)
4. Fully upholstered chair
5. Fully upholstered chair (with spring back)
6. California or loge type chair

These generalizations apply mostly to those seats which have been in use for a few years, as there has been a great advance in the engineering of proper seating. These latest models provide a solid seamless metal bottom plate, which fits so snugly where it adjoins the upholstery that it provides no nesting place. There are no vent holes in this bottom plate to admit insects. The arm rests are an integral part of the side standard. There are no supporting brackets or hinges on seat or back. The upholstery is so applied that there are no "lapped-over pockets", and, in short, the chair has been designed to help exclude pests.

While we've still got that sprayer in hand, let's remember to spray the perimeter of all our carpeting once each three months. If the outer six inch edge is thoroughly done at this frequency, a minimum amount of damage to floor coverings due to clothes moth and carpet beetle attack will be had. Is there any lounge furniture, or perhaps certain

Associated with the Western Exterminating Company for the past 15 years, J. Edwin Sameth is now treasurer and general manager. Western Exterminating Company has offices in five eastern cities, and is the largest company of its kind in the country, serving about 250 theatres, comprising about 300,000 seats. He was born on Sept. 28, 1907, and is the father of two boys.

draperies for accoustical or decorative purposes? If so, keep them in mind for a careful inspection and treatment once every three months. It pays.

A much lesser problem is the occurence of roaches in the rest rooms and around drinking fountains. For this purpose, the liquid spray type of insecticide is not nearly as effective as the dry powder types, a number of which are on the market. (The ones having pyrethrum powder as their killing agent are the safest in the hands of the non-professional exterminator). They should be applied *behind* the plates where pipes enter the wall, *behind* the base boards, *inside* waste receptacles, particularly that type having a suspended burlap bag within. It is not necessary to spread the chemical all over in an indiscriminate fashion. Why waste it?

There is yet one pest, (actually two) which annoys a great many theatres, the rodent. Rats and mice are food scavengers, with the mouse being the more particular in his selection of diet. He is much more likely to nibble on peanuts and peanut shells, on little pieces of almond bars, than the rat who is not so fussy, as long as there is enough for his greedy appetite. Pieces of apple, orange, and parts of sandwiches are his diet.

THE BEST MEANS of rodent control available to the theatre's own housekeeping crew is the careful inspection of the "shell" of the theatre, meaning the four exterior walls and the basement, for entry holes. These should be closed up with good cement having a small gravel aggregate, and in those instances where masonry closure is not practical, the use of either 3 x 3 or 4 x 4 - 12 gauge hardware cloth is very resultful. By all means, all piles of old scenery, or of old junk and debris should be hauled out or else, if valuable, stacked neatly on cross horses. Thorough attention to closing up of apertures, plus good housekeeping will accomplish wonders with rodent problems.

In those cases where the problem is so severe because, (perhaps the basement has an earthen floor and rats have ready access to the theatre,) then more heroic measures must be taken. It may be necessary to poison the rats, and the use of a slower-acting poison is best, as fewer odors will result. Squill powder is fine for this use, it being thoroughly mixed with attractive food baits such as meat, fish, or cereals, at the rate of one part squill to 10 parts food by weight. Put out in small cubes about the size of a large marble, and in the areas most frequented by the rats, it brings results in about three or four days time.

There are, naturally, a number of other pests which occasionally do become problems to a theatre operator, but the ones described are the real headaches.

Here is a suggested six-month's schedule for the much abused "typical theatre" above referred to: (see chart)

After the real hard work of the first month is over, the schedule can be maintained by the expenditure of one and one-half hours weekly. The longer it is adhered to the better will be the result.

Should a problem arise, which because of its nature requires specific advice, we will be very glad to inquire first through the National Pest Control Association, if it has a member company which could extend its services to that particular area. In the event that this professional help were not available, we would freely extend any advice and assistance of which we are capable.

Week of Jan. 5, 1942	Spray all seats
Week of Jan. 12, 1942	Throw out all unnecessary junk which may offer harborage to rodents
Week of Jan. 19, 1942	Treat rest rooms, drinking fountains
Week of Jan. 26, 1942	Spray perimeter of all orchestra carpet
Week of Feb. 2, 1942	Spray orchestra seats 1 to 99
Week of Feb. 9, 1942	Spray orchestra seats 100 to 199; wire up rat and mouse entries, put out bait
Week of Feb. 16, 1942	Spray orchestra seats 200 to 299; treat rest rooms; drinking fountains
Week of Feb. 23, 1942	Spray orchestra seats 300 to 399
Week of Mar. 2, 1942	Spray orchestra seats 400 to 499; spray perimeters of balcony, lobby, and foyer carpeting.
Week of Mar. 9, 1942	Spray orchestra seats 500 to 599
Week of Mar. 16, 1942	Spray orchestra seats 600 to 699; treat rest rooms, drinking fountains
Week of Mar. 23, 1942	Spray orchestra seats 700 to 799
Week of April 6, 1942	Spray orchestra seats 800 to 899; put out bait for rats and mice
Week of April 13, 1942	Spray orchestra seats 900 to 1000
Week of April 20, 1942	Spray balcony seats Bal. 1 to 99; treat rest rooms, drinking fountains
Week of April 27, 1942	Spray balcony seats Bal. 100 to 199; spray perimeters of all orchestra carpeting
Week of May 4, 1942	Spray balcony seats Bal. 200 to 299
Week of May 11, 1942	Spray balcony seats Bal. 300 to 399
Week of May 18, 1942	Spray balcony seats Bal. 400 to 500; treat rest rooms, drinking fountains
Week of May 25, 1942	Spray orchestra seats 1 to 99
Week of June 1, 1942	Spray orchestra seats 100 to 199; spray perimeters of balcony, lobby, foyers carpeting
Week of June 8, 1942	Spray orchestra seats 200 to 299; put out bait for rats and mice
Week of June 15, 1942	Spray orchestra seats 300 to 399; treat rest rooms, drinking fountains
Week of June 22, 1942	Spray orchestra seats 400 to 499
Week of June 29, 1942	Spray orchestra seats 500 to 599

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- ★ *Jackson "Biltright" Link Type Mats.*
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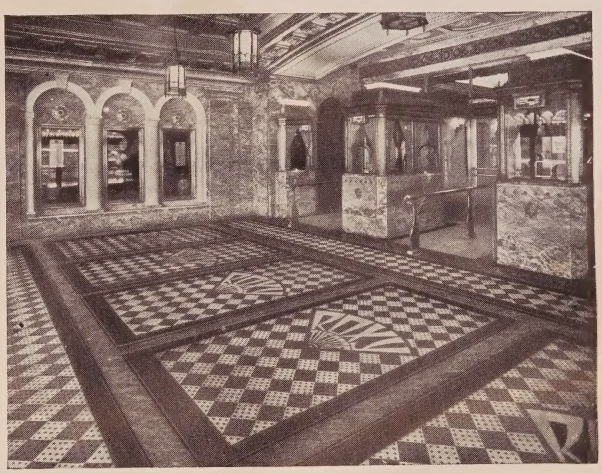

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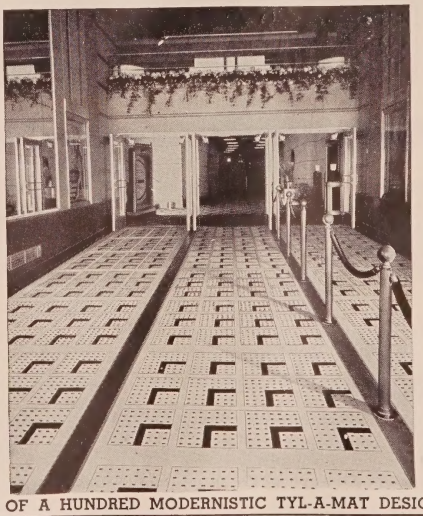

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Floor-cleaning Carpets

It's impossible to send theatre carpets out to a dry cleaner but great care should be exercised in shampooing on-the-floor.

by Michael S. Paulson

IN A VERY EXCELLENT SURVEY of rules to be observed in the maintenance of wool carpets, carried in the 1941 edition of The Theatre Catalog, an eminent body of carpet manufacturers stated that carpets *never* should be shampooed on the floor. There is no questioning the sincerity of this body, and it might be added, that they are 100% correct, if the cleaning to which they refer is an amateurish, unskilled effort of scrubbing with soap and too much water, without the proper equipment or understanding of rug construction necessary to doing a good job. To follow such a method is probably the world's best way to rot the back and fibre of a carpet, and ruin both its wearing qualities and its appearance.

But there are ways to floor clean a carpet, thoroughly and scientifically, that will return its original lustre and brightness without harming it one iota.

It goes without saying that shampooing can always be done best when the carpet is taken up, but this is not feasible unless the theatre is closed down for remodeling and the carpets are removed anyway. Certainly, the cost of off-the-floor shampooing would be uneconomic on a seasonal or periodic basis, not only in the cost of taking up and relaying, but also in the over-use of wooden pegs, the high probability of shrinkage, and in the all-important convenience factor. In some theatres, the accident hazard of floor recesses would forbid it. Carpets shampooed without removing can be played in service the very next day. Of course, if the carpets will be removed anyway, to be cut down for use elsewhere, shrinkage and the other factors are not important, and advantage should be taken of the opportunity to have them thoroughly washed in a well-equipped rug cleaning plant. However, for periodic cleaning, carpets must be shampooed on the floor, or not at all.

IF CARPETS are never shampooed, the owner is faced with the anomaly of using carpeting over a long period of years without ever enjoying the real beauty and softness of the carpet except when it is new. The proof of this would be simply to subject any carpet over one year old to a "facial". If carpets are never shampooed, a daily residue (after cleaning) of grit and grease will accumulate, gradually making the daily cleanings more difficult and less effective.

In fact, in its advice on conservation and getting the most out of our existing goods, the Consumer's Guide of the United States Government cautions:

> "To save carpets clean them before they get too dirty." To make this statement all embracing we might add: "cleanliness is also a virtue in its own right" and "to save carpets, take steps to retard the causes which make them *get too dirty.*"

Therefore we shall turn our attention first to procedures, some of them well known, that should be followed in preventing dirt at the source.

PREVENTING DIRT

We serve hundreds of theatre customers, making a sincere study of theatre carpet problems, and we believe the first step is to attempt to take all precautions that will minimize the amount of abrasive "street" dirt, which is carried in on the feet of the paying customers. As these feet are the most important carriers of harmful dirt, particularly in wet or damp weather, it is our policy to advise perforated or corrugated rubber mats at all approach points. These points are particularly the entrance lobbies, drinking fountains, and rest room exits. Not only are these the dirt areas, but they are also the heavy traffic areas where carpets are subjected to the greatest legitimate wear. Stairways are a special problem, affected less by dirt than by the buffing action of sliding shoe soles. Rubber nosings and even entire rubber treads have been found to be most helpful in this position.

Another legitimate wear area, affected somewhat by foot dirt, is the aisle head where ushers and patrons constantly traverse one small section of carpet. Recently, we inspected a corrugated rubber matting which is obtainable to match a number of the more common designs of theatre carpets in both figure and color tones. This may be the answer, although we have never seen anything objectionable to a fitted design of white corrugated rubber at the aisle heads, thereby pointing out the heads in the dimly lighted standee area, and furnishing a tough floor covering at a vital spot.

Although dust in the air can never be completely eliminated, it is important from the standpoint of cleaning to minimize this as much as possible by keeping air-conditioning filters at peak efficiency.

DAILY CARE

For daily care, the equipment and the help are all important. Although the equipment used for daily vacuuming is frequently of the suction type, we have found that this type of machine does not clean carpets so thoroughly as the beater type. This is because when great quantities of heavy dirt are deposited and tramped into the carpet fibres, no mere stream of air, however powerful, can dislodge and bring it out as effectively as a machine which will agitate the carpet, and loosen the dirt. Every professional rug cleaner uses beating equipment as an integral part of its cleaning process, and his methods should be followed. Suction equipment is best for all cleaning above the floor such as walls, draperies, seats, screen, etc., and possibly in some instances should be used for this work more frequently.

With regard to help, it is important that the employe assigned to the duty of complete vacuuming every day should be a conscientious one who will not skip areas or cut corners. He should be told the replacement costs of the carpet installation under his care, and should be impressed with his obligation to protect that investment. Carpets should be vacuumed *completely* each day without exception. In cases of unusually heavy traffic, more than one cleaning a day will be advisable particularly at points of wear. If this must be done during the show, silent vacuum cleaners are obtainable, although not of the beater type.

SEASONAL CARE

Carpets should be shampooed and treated for moths at regular intervals. Shampooing should usually be done twice a year, and moth treatments at more frequent intervals, according to the type of treatment used. An exterminating specialist should be consulted. In every case where both shampooing and exterminating will be done at about the same time, shampooing should be done first, for better penetration of the insecticide and all-around effectiveness. The shampoo, itself, will be a potent killer of insects of all sorts. Only a specialist with considerable experience in cleaning carpets on the floor (preferably theatre and other heavy-traffic areas) should be permitted to shampoo the theatre carpets. It pays to use care in the selection of the cleaner, since he will do this work twice a year. Cleaners specializing in floor shampooing are available in most cities, but in doubtful cases it would be wise to consult the carpet dealer for his recommendation.

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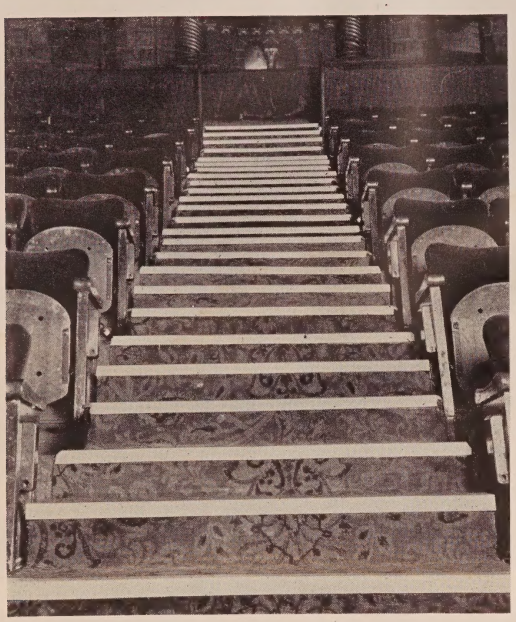

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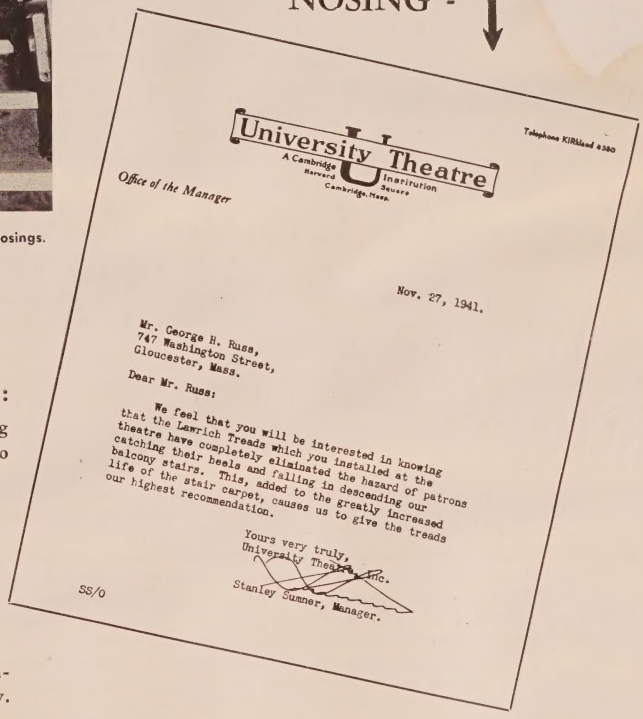

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Cambridge, Mass.

Telephone KIRkland 4380

Office of the Manager

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LIMITATIONS OF CLEANING

The limitations of cleaning are sometimes not fully recognized. For example, vacuum cleaning is never really thorough. One can always get more dirt out by vacuuming the carpet over again. By the same token, shampooing is never really thorough unless the carpet can be taken up, beaten by machine, shampooed on both sides, and rinsed with soft water until the water runs clear. On-the-floor shampooing can be done on the surface only, and without rinsing. Such a light shampoo will soften and raise the nap, enabling the vacuum cleaner to remove deep dirt more effectively, and will restore the original bright colors. It is the overzealousness of some cleaners, and most amateurs, in their attempts to accomplish a more thorough cleaning on the floor, by a light rinse and quick extraction, that has resulted in experiences of rot and moldiness that prompt some experts to disapprove of on-the-floor shampooing. Proper floor shampooing will add years of useful life to the carpet, and should not be confused with the latter harmful methods.

MORE TIPS ON LONG WEAR

It is good logic that will produce dividends to plan for replacement by obtaining additional yardage at the time of the major purchase and to reserve it for repairs as needed. A 10% overage will be ample for the heaviest traffic situation, and can be graded down in the lesser spots.

Michael S. "Mike" Paulson was born in Pennsylvania, has lived mostly in Swarthmore, was educated in Chicago and Philadelphia, and comes from a family of rug cleaners, his father and uncles also being in the business. He has made a specialty of "heavy-traffic" problems in carpet cleaning, is constantly testing detergents to find improvements, treats every job as a special problem, and serves regularly a large territory in eastern coastal cities, cleaning nearly 1,000,000 square feet of carpeting yearly.

Circuit operators can get the same effect by using the same design and color in several locations, and making replacements in a number of their theatres from the one which is worn the most.

If the area to be carpeted can be arranged to fit definite carpet widths, the wear areas can be replaced with carpeting from the stage end of the aisles and lesser wear areas at definite intervals. This can be premeditated in the original installation; but the replacements should be made at the *slightest* sign of wear, and never after the areas have become definitely shoddy.

Stairway carpets can be installed full, and tucked under at the ends to allow for "moving" as it becomes worn at the nosings. Once again the "moving" should take place at the *first* sign of wear.

In general, to get the most out of the carpets, one can prevent some dirt which is brought in from being deposited on the carpeting by the use of rubber mats, and one can prevent this grit from damaging and discoloring the carpeting by daily vacuuming and seasonal shampooing.

Progressive Construction
...TO HOLD YOUR CURRENT PATRONS

How one theatre owner discouraged competition in a normal community that suddenly became an army camp "boom town."

by O. C. Hauber

WE WILL ALL ADMIT, I presume, that the age of miracles has passed, and that no one, especially an exhibitor, can expect a real substitute for hard work, intelligence, and foresight. I do not profess to be a miracle man, but if I am a bit proud of a construction project that has received considerable attention, please bear with me. What I did can be duplicated by theatremen in many sections of the country, although it becomes a financial impossibility in large cities. However, the underlying principles of the building of the theatre can be made effective in any situation.

The Annex, Pineville, La., was the outgrowth of a boom that hit the town through Uncle Sam's building several army camps in the immediate vicinity. Pineville is a suburb of Alexandria, La., and has a normal population of about 4500. The Hauber, seating 450, took care of the community needs nicely, but the boom brought many showmen to look over the situation.

I FELT that I would make myself the most congenial competitor, and hence started the Hauber Annex. I know a thing or two about competition, having learned all about it the hard way since first purchasing a picture show in Kent, O., back in 1911 for $4. I also know a mite about annexes, having started one on the lot adjacent to one of Pine Bluff, Arkansas' largest apartment house developments back in 1926 of which I was owner, operator, and my own contractor. This "Parkview Homes" operation was a $125,000 investment, and the second structure, or annex, was started to meet a demand as soon as the original buildings were completed.

WITH THIS EXPERIENCE in both competition and annexes, I decided to build this second theatre right next door to the Hauber, the same wall being the opposite walls of the two theatres. The ground had a natural slope of four and a half feet, giving the theatre an ideal pitch. It is 41 feet wide and 133 feet long over-all. The distance from lens to screen is 120 feet, the front is about 30 feet high, and the ceiling heighth of the main auditorium averages about 19 feet 6 inches.

The lobby is 12x20 and inside foyer 12x20. The balcony seats 120; downstairs seats 440, with room for 220 more. Chairs are 19 inch upholstered seats with veneer back, set 32 inches apart. Ceiling is Celotex and Nu-Wood. Walls are plastered with travertine effect, painted in blue stipple effect with neon lighting recessed in back of four foot Masonite Wainscoate. The front five rows are four inch step-ups, being the only steps in the building, except the steps to the balcony. Lobby and foyer floors are Tile-tex, and the balance of the floor is concrete. The operating room is built of one inch of sheet rock with a quarter inch covering of asbestos with concrete floor, toilet and lavatory, with a 10 foot ceiling and ample ventilation to the roof. Under the operating room and over the lobby is a small room used for storage. The roof is two inch center match decking laid on Truscon Steel girders set four feet apart, with standard built up roof.

THE ANNEX was started in April and after the lobby and stage were built it started as an open air theatre. Benches were made out of flooring and 2x6. We operated continuously at night, building the theatre during the days.

We were rained out only once, and many people brought cushions along to offset the hard benches. It was surprising how many were interested in the

PLANNING AHEAD...

AMERICA'S BEST CANDY

In the interests of national defense, the vending machine industry marks time in the production of new equipment. Nevertheless, Berlo Vending Company's plans go forward. We give you our pledge that, when the emergency is over, we will be ready with an amazing, new and improved vendor. Watch for it!

— FOR THE DURATION —

BERLO AUTOMATIC CANDY VENDORS are silent, efficient machines designed especially for motion picture theatres. Current models will be available only as long as our present limited supply lasts.

- **For greater beauty**—we will continue to individualize every new machine to blend with the interior of the theatre.
- **For complete harmony**—we will build-in our special unit where a suitable wall alcove is provided.
- **Send us your specifications.** Our designers will prepare blue-prints and plans without charge.

BERLO TAILORED CANDY COUNTERS are proving every day to be a valuable asset to theatres in all sections of the country. They are individually designed to harmonize with any specific interior.

- They perform a vital patron service in the most complete, satisfying manner.
- They provide an important source of additional revenue to theatre owners.
- They cost you nothing to install—nothing to maintain. **Write today for complete information.**

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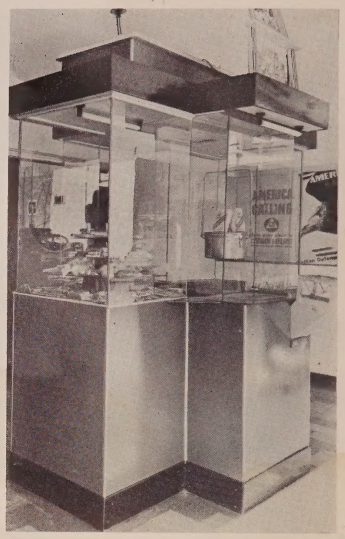


O. C. HAUBER in the specially designed ticket booth which also serves as a candy and popcorn vending center. The doorman is eliminated by having the cashier pass out a ticket and the correct change which the patron drops into a box. Of course, the completa honesty of the cashier is necessary to such a system. More detailed study at the right.

progress the place was making. Others liked the open air movie idea, since we permitted smoking.

THERE ARE MANY UNIQUE IDEAS carried out in this theatre in the interest of economy, which must always be taken into consideration in an operation of this size. For instance, the ornamental neon lighting in the front windows is so arranged that it also lights up the aisles in the balcony, and the men's sign and the ladies' sign are so arranged that they light up the downstairs aisles, although the aisles also have plenty of illumination to light them properly.

THE BOXOFFICE CONTAINS the candy unit and popcorn unit, one on one side and one on the other, with the ticket office in the center. The one cashier handles it all, in addition to selling the tickets and collecting them. This is done by the cashier giving the tickets to the customer together with the correct change. The patron drops his own ticket and admission money into a container or box. This is checked by the cashier, who trips the money by a foot lever into a money box to which the manager only has the key. Tickets and money balance against the tickets sold.

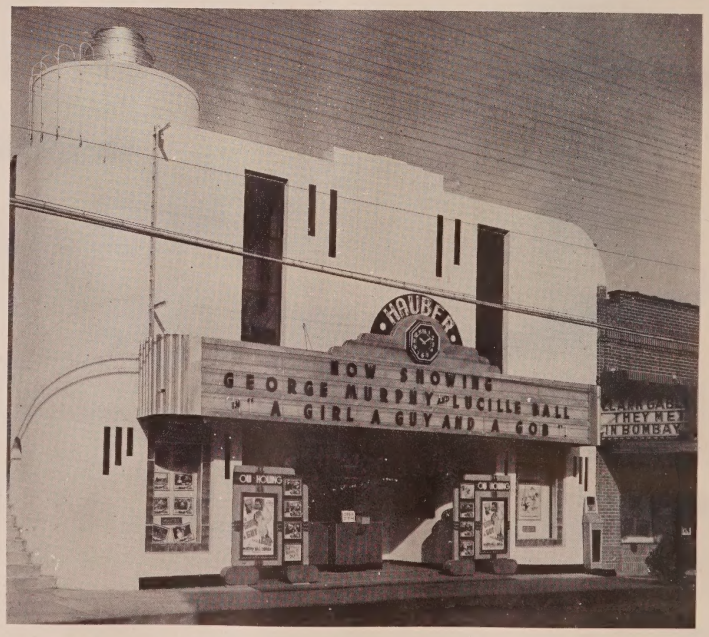
TWO OF THE ADVERTISING DISPLAY windows are built with an outline of glass blocks with white neon tubing all around, and the display is well lighted from the neon as well as giving a very pleasing effect from the front. There is a tower extending above the main part of the building, and it is lit up with three circles of neon and eight large cane effect sticks of neon in blue, each of which comes down the rounded side of the building with each one extending six inches further than the next one. The The front is white stucco while the color motive is white or aluminum and blue, with carpets blue, and chairs and wainscoating in brown.

DUE TO THE FACT that I employed no architect and no contractor, and having obtained a very good price on all material, plus my ability to do most any kind of work, I was able to build the Annex for less than $14,000.

That about covers it with the exception of a few details. The equipment cost an additional $10,000.

I opened the Annex as an open air theatre with building continuing all around me on June 22. The completed Annex was opened on Dec. 5.

OTHER DETAILS are as follows: The house is not air conditioned; Celotex and Nu-Wood accoustical material was used; Ideal Seating Company furnished the seats; a Coinometer is used in the boxoffice; the curtain controls and track were built by myself and my assistants



THE FRONT OF THE HAUBER-ANNEX THEATRE, PINEVILLE, LA., is modern and effective; and through its doors passed many patrons before the theatre itself was under roof.

MANLEY, INC.

Just Like DOUBLING Your BOX OFFICE ATTENDANCE —

By Increasing Your Revenue
With a New Manley Super-Electric Popcorn Machine

Maybe your attendance has reached the saturation point . . . maybe competition is cutting into your box office . . . at any rate there are two square feet of floor space in your lobby that you can put to work to boost your revenue. Read what an executive of one of the larger theatre circuits has to say: "A Manley machine increased the net of our smaller theatres 25%—which is equivalent to doubling my box office attendance." And this experience is typical of Manley owners everywhere!

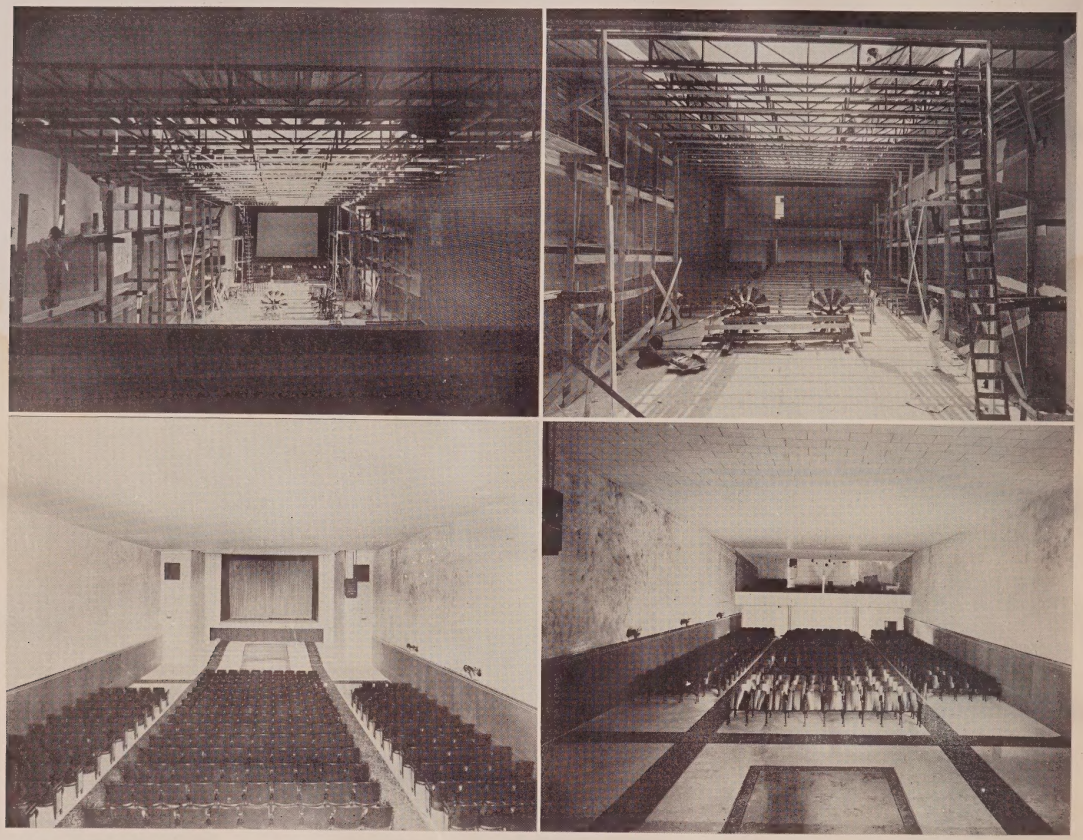
MANLEY, INC.
Formerly Burch Mfg. Co.
1906 WYANDOTTE STREET • KANSAS CITY, MISSOURI

PRODUCTION LIMITED BECAUSE OF WAR EMERGENCY

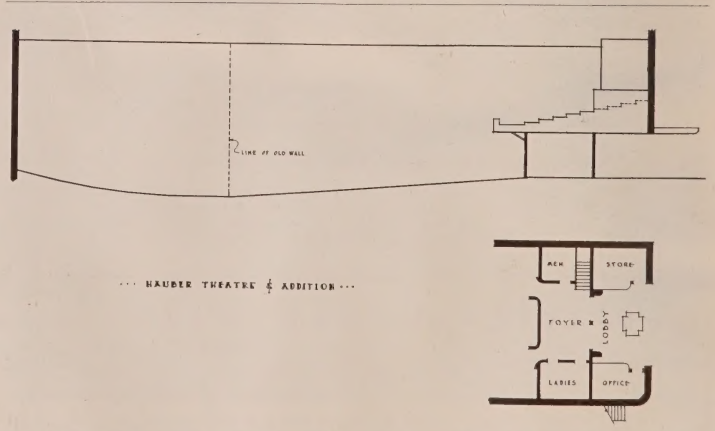
from an old sign flasher; the display frames are built in glass blocks with Neon Argus pattern; the lighting fixtures are fluorescent, personally built; the projection lamps are Cyclex; the projection machines are Wenzel Ace; the screen and sound RCA; the sign and marquee were made by myself with assistance from a local tinner; sign letters are Artkraft; popcorn vending machines were also built by myself; a Voigt magic drinking fountain was installed, as was a Resnor suspended propeller type 110,000 BTV heater; lenses are Bosch and Lomb; rubber mats were made in Lake Charles, La., and supplies came from a local dealer, Delta Theatre Supply Company, New Orleans, La.

BRIEFLY, this will give any exhibitor the highlights of the entire proposition. Naturally, my efforts were primarily influenced by a desire for economy, but I always was of the opinion that a house could be built for such a small sum, and now I have proved it could be.

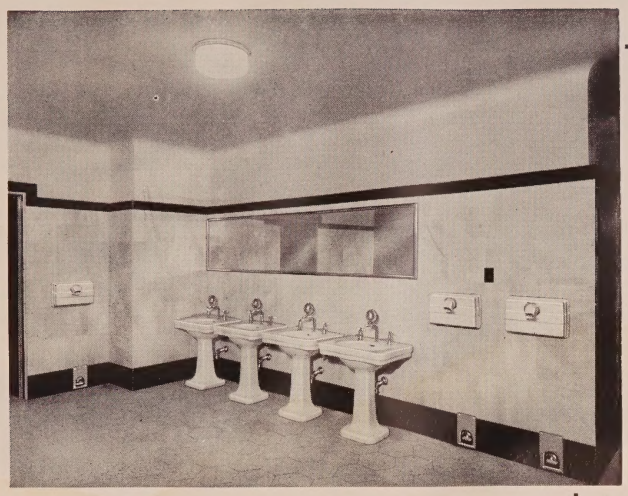
If any exhibitor wishes any additional details, I am at his service.



LOOKING TOWARD the screen on June 2nd, the theatre has taken form but is still far from complete. Looking toward the rear on the rear on the same day, the temporary crude wooden benches and impromptu ventilating system used each night can be noted. The views at the bottom show the really commendable little theatre which finally opened on December 5th.



O. C. Hauber is one of the industry's real old-timers. His career in the motion picture business dates back to 1911, when he purchased a picture show for four $1 bills. Born in Cleveland, O., Hauber has confined his operations to the region around Ohio, Arkansas, and Louisiana. He is a builder, craftsman, and real estate operator as well as owner-exhibitor. He was secretary of the Arkansas Motion Picture Exhibitors' Association for a number of years. Courage and unbounded energy have been two attributes of his success. He is an original thinker, has vision, and wonderful ability as an organizer and executive. He understands the public, believes in advertising, appreciates psychology of advertising, and knows the value of "showmanship" and mass appeal.



SHOWING SANI-DRI, MODEL "SR-W" IN WASHROOM OF STATE LAKE THEATRE, CHICAGO

REPRESENTATIVE THEATRES THAT HAVE INSTALLED SANI-DRI

STATE LAKE THEATRE	Chicago, Ill.
GARDEN THEATRE	Charleston, So. Car.
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MIDWEST NEWS REEL THEATRES CO.,	Chicago, Ill.
MARSHALL SQUARE THEATRE	Chicago, Ill.
VARSITY THEATRE	Lincoln, Neb.
STADIUM THEATRE	Evanston, Ill.
UPTOWN THEATRE	Chicago, Ill.
KEN THEATRE	Chicago, Ill.
HOWARD THEATRE	Chicago, Ill.
NORSHORE THEATRE	Chicago, Ill.

For

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★ HEALTH DEFENSE
★ FIRE DEFENSE

EQUIP WASHROOMS WITH

SANI-DRI

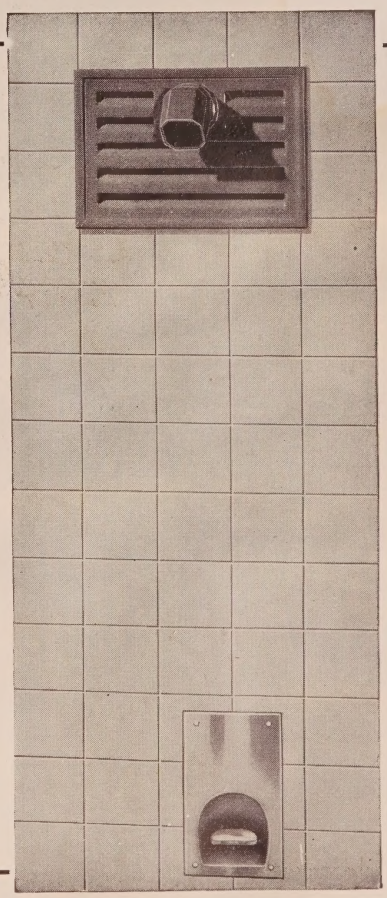
"MORE THAN A DRYING SERVICE"

SANI-DRI provides a *constantly dependable, sanitary* drying service—it dries *quickly* and *thoroughly*—*automatically* keeps washrooms *cleaner*, free from towel-litter and wall-defacing towel-cabinets and receptacles—and *greatly reduces* washroom service requirements and costs.

SANI-DRI AIDS NATIONAL DEFENSE by conserving labor and material.

SANI-DRI AIDS HEALTH DEFENSE by providing the *most sanitary* drying service—there is nothing to carry contamination from one user to another—and SANI-DRI eliminates germ-catching accumulations of used towels.

SANI-DRI AIDS FIRE DEFENSE by eliminating towel-litter from the washroom — a dangerous fire-hazard — awaiting only a carelessly dropped match or cigarette to start a dangerous blaze or panic.



"FR-W" ESPECIALLY DESIGNED FOR THEATRE WASHROOMS

SANI-DRI Model "FR-W" (full-recessed), shown at right, is particularly suited to theatre washroom requirements. It saves room-space and the full-recessed foot-pedal protects against accidental or deliberate damage. Other models, "SR-W" (semi-recessed), and "SF" (pedestal model) are also available to meet the conditions of any washroom layout.

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Dependable Since 1897

Producers of High Grade Iron, Ni-Resist, Semi-Steel, Brass, Bronze, Aluminum and Alloy Castings, Machine Work, Plating, Porcelain Enameling, "Sani" Food and Drink Equipment, "Sani-Dri" Electric Hand and Hair Driers, Cast Iron Welding Rods.

SANI-DRI DIVISION — 142 EXHIBITOR STREET

NORTH CHICAGO ILLINOIS

Air Raid Precautions

AND A SUGGESTED FIRST AID STOCK

As compiled by a committee of Eastern circuit and independent owners. Distributed free to the trade, they are worthy of note.

(EDITOR'S NOTE: *A committee composed of independent and circuit theatre operators and publishers of trade publications has devoted its time and effort to prepare these pertinent facts regarding air raid precautions as they relate to the proper and efficient operation of theatres during the present period of emergency. A theatre is a place of assembly for great numbers of our fellow citizens, and everyone can make a substantial contribution to the united war effort by taking every precaution for their safety. It is not only one's duty as a citizen to be prepared to safeguard lives, but the tradition of the theatre has always called for effective and efficient operation during periods of emergency. Read carefully the suggestions outlined in the article, and co-operate to the fullest extent with authorities in charge of air raid precautions in the community. Failure to assume your responsibility in times such as these may result in some unfortunate incident occurring in the theatre which might not only seriously affect business, but which would also produce a harmful effect on all theatres throughout the area. The threefold responsibility: to the community, to oneself, and to fellow exhibitors, requires that everyone be on the alert at all times. The committee requests that everyone co-operate by thoroughly reading the following rules and suggestions, acquainting the members of the theatre staffs with them, and by promptly putting them into effect.*)

SEE THAT AN AIR RAID WARDEN and a deputy air raid warden are appointed in every theatre. (Air raid warden should be the manager and the deputy the assistant manager.) In all theatres with stage shows, the personnel back stage should select an air raid warden and a deputy warden. It is important that someone in authority be in charge in case of an emergency and in the event that the warden is not there.

Don't put off ordering flashlights now. Have them (as well as an extra supply of batteries) on hand for any emergency.

A black-out tag should be posted on the switch or panel controlling the outside lights. Be sure that the proper members of your staff know where this switch is located so that in case of an alarm the front of the theatre can be blacked out without delay. It is suggested that this switch be painted white.

In places where light comes through windows (manager's office, fire towers, etc.), arrange either to paint windows black or get black roofer's paper to cover the space. Inspect your theatre thoroughly now, from top to bottom, to make sure that every window is properly covered.

Know your air raid warning. In general, it is short blasts of rising and falling pitch on whistles or horns. The "all clear" is a steady tone for two minutes. Watch your newspaper for description of the local signal.

ABOVE ALL, KEEP COOL. Don't lose your head. Stress to all your employees the importance and necessity for coolness and calm in time of emergency. Tell them their conduct will influence your patrons.

Wherever there are emergency lighting systems, see that they are in good order. Where there are no emergency lighting systems, see that the personnel of your theatre is equipped with flashlights, and that they are always kept in operating condition.

In places where you have lights burning all night, make certain that these lights cannot be seen from the outside, because in the event of an air raid alarm your theatre or property will be broken into, the lights extinguished, and avoidable damage will result, plus the fact that you may be aiding the enemy. The smallest kind of a light, even a candle or match can be seen very plainly from the air by the pilot of an enemy bomber. Therefore, where it has been the practice to burn lights all night, unless it is of the greatest importance that these lights be kept burning, turn them off.

Those working in the building at night are urged to lower all blinds and, in the event of an alarm, to turn out all lights.

In the event of an air raid, if the current is not shut off, the show should be continued if it is at all physically possible. Where there are non-sync machines, if the show is stopped, play the non-sync machine to keep the people occupied in some manner. Where there are stage shows, it is advisable to engage in community singing.

ALL STAFFS SHOULD BE skilled in first aid. Your local doctor or some member of your local air raid precaution board will be happy to co-operate with you in this matter. The doctor should explain to the staff what must be done in an emergency, and it is most important that every theatre be equipped with at least one good first-aid kit.

Put a covered box, bucket or bag with the required amount of sand on each theatre roof, and be sure to designate someone to handle that sand in case of an emergency requiring its use to extinguish incendiary bombs. (Consult your local authorities as to required amount of sand for your theatre.)

If incendiary bombs fall, play a spray from a garden hose (never a splash or stream) of water on the bomb. Switch to a stream to put out any fire started by the bomb. Switch back to a spray for the bomb. The bomb will burn for about 15 minutes if left alone, only about two minutes under a fine water spray. A jet splash, stream or bucket of water will make it explode.

If you have a soda and acid extinguisher (the kind you turn upside down) use it with your finger over the nozzle to make a spray. Don't use the chemical kind (small cylinders of liquid) on bombs. It is all right for ordinary fires.

THE SUGGESTED EQUIPMENT for the protection of theatre roofs is as follows: Asbestos gloves, black glasses, helmets, long-handled shovel, sand in 25-pound bags, face protector (mask and goggles), and blanket kept wet.

Arrange for someone in authority from your local air raid wardens committee to meet with you and your staff at their earliest convenience, and check on the precautions you have already taken.

You cannot place too much importance on the necessity of having your employees regularly engage in air raid drills and fire drills at a time when there is no one in the theatre. The foundation of preparedness is the drill, and as the Army drills its soldiers, so you must drill your staff and, above all, instruct your employees to keep calm.

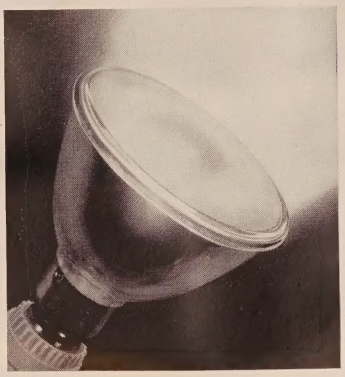
Keep cool! Panic can have tragic results even without fire. People become panicky in a crisis because they have never stopped to think what they might do in an emergency. Everything possible should be done to create an atmosphere of calm with the patrons. They should be told that authorities claim they are safer inside the theatre than they are anywhere else because it is the psychology of the enemy to try to get people to stampede into the streets where they become easy targets.

Every man in charge of a theatre should carefully check his water and gas supply, and get as much information

Because General Electric makes more than 9000 different kinds of lamps . . .

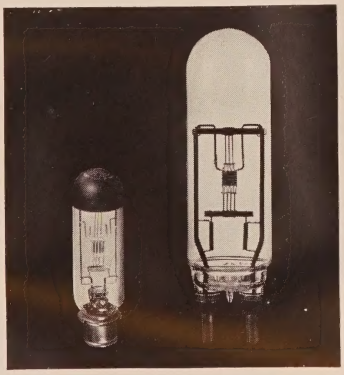
. . . There is a kind and type of lamp for every theatre lighting service. A few of them are shown here. G-E MAZDA lamps represent the result of more than 40 years of research and development. Each of them must pass 480 tests, checks, and inspections in manufacture to guard against imperfections that might affect their performance in service. Every year G-E MAZDA lamps give more light for the same current because they are *made to stay brighter longer*. Always look for the monogram GE General Electric Company, Nela Park, Cleveland, Ohio.

G-E MAZDA F (fluorescent) lamps in gold pink, blue, green, red, white and daylight make possible the use of color at amazingly low cost. They are recommended for use only with equipment providing good power factor. New low prices were announced Jan. 1, 1942. For example, the 15 watt daylight size now lists at only 65c.



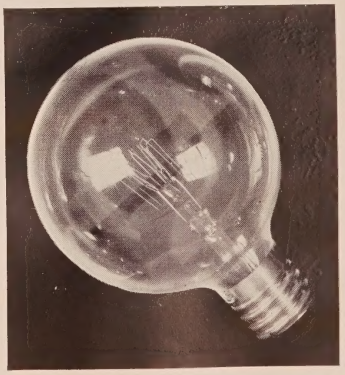
G-E MAZDA PROJECTOR lamps combine reflector, lens, and filament in one sealed-in unit, protected from dust, moisture and deterioration. Both spotlight and floodlight types are small in size and light in weight and come in 150 watt size. The 150-watt projector lamp was previously reduced to only $1.40.

G-E MAZDA REFLECTOR lamps are similar to the projector lamps except they are smaller and lighter in weight. Reflector lamps are recommended for use indoors or in sheltered locations. The 150-watt size (both spot and flood types) is now only 95c. The 300 watt size (both spot and flood types) has recently been reduced to $1.40.



G-E MAZDA LAMPS for motion picture projection have the greatest amount of tungsten in the smallest amount of space, and provide a highly concentrated light source. The 1000 watt (for 16 mm.) costs $6.00; the 2100 watt (for 35 mm.) lists at $16.50.

GENERAL LIGHTING SERVICE lamps fulfil most of the lamp requirements for ordinary theatre use. Made in sizes from 6 up to 1500 watts, practically this whole line has been reduced in price. For example, the 40-watt size is now only 13c.



G-E MAZDA SPOTLIGHT lamps are available in many sizes from 100 to 2000 watts. Widely used for displays and stage lighting. With this range, any display or stage lighting problem may easily be solved. The 250 watt size (illustrated) is now $1.15.

G-E MAZDA LAMPS

GENERAL ELECTRIC

For more information, see your nearest theatre supply dealer selling G-E MAZDA Lamps

as possible from the utility companies, as to the manner in which the shutting off of water, etc., is handled.

In case of fire or smoke in the vicinity of the theatre, be careful to watch the ventilating system so that the smoke is not drawn into the house. In case of gas bombs, turn off the ventilating system and keep doors shut.

It is of paramount importance that your engineers and electricians keep the manager's office informed of their whereabouts at all times.

IF YOUR THEATRE is a building where there are other occupants, such as stores, offices, etc., the entire building should be organized, and there should be an air raid warden and deputy assigned to every building. In larger buildings, fully informed air raid wardens should be assigned to each floor.

In case of an air raid, authorities claim the best place to be is three floors up from the street and three floors down from the top.

Glass shatters easily, so stay away from windows. Don't go to windows and look out during an air raid. Do not use the telephone during air raids as this service is of utmost importance to our defense forces at that particular time.

Designate some person to put records in a steel cabinet so they cannot be lost. See that money is taken from the box office at regular intervals, so that in case of a black-out a minimum of box office receipts remains at that point.

Have supplies spread out so that in the event some should be destroyed there will be a sufficient amount elsewhere to operate. Do not store important articles, equipment, and supplies in the basement, due to the danger of water flooding the basement and ruining them.

IT IS OF GREAT IMPORTANCE that the housekeeping, cleanliness, etc., of theatres receive extra attention now. In case of fire, for instance, trash lying around increases the fire hazard. Rusty pipes will break more quickly than good ones. Storage of cleaning fluids and inflammable material, paints, etc., should be very carefully watched.

Outside lights should conform to the local air raid defense requirements. Instructions regarding the painting of skylights, windows, etc., will be issued locally.

An air raid alert must be handled as effectively as a general air raid. Fear and panic have been the cause of the loss of more lives than actual catastrophe itself.

In the event of a disturbance, air raid alert or otherwise, an employee should notify the theatre air raid warden immediately. All members of the staff should take their assigned positions so patrons can see that your theatre is adequately prepared for an emergency.

All front house ticket-takers, cashiers, and doormen should be instructed to permit anyone seeking shelter to enter the theatre gratis in the event of an air raid alert.

Projectionists should be cautioned regarding the closing of their shutters in the booth in the event of fire or emergency that stops the show.

IN THE CASE OF A LOCAL EMERGENCY where it becomes necessary to inform the audience that there is a disturbance on the outside, house lights should be raised before the announcement is read and the manager (or in his absence the assistant) should be the only one to make such an announcement, such as this as a suggestion:

> "There is an outside disturbance in the neighborhood but at present there is no danger in the theatre. We will continue with our show. Authorities claim it is much safer to remain in the theatre than to go outside. However, before going on with the show, I want you to know it is your privilege to leave. We earnestly request that everyone keep calm."

It is suggested to leave the house lights on for a minute before the show continues. (This statement may have to be altered if local regulations require patrons to remain indoors during an air raid.)

Where the show must be discontinued and the audience kept within the confines of the theatre, be sure to provide some form of entertainment either non-sync, or otherwise to keep the audience's mind off what is going on outside.

In case it is necessary to clear the theatre, an announcement to this effect should be made. By pre-arranged signal the ushers should execute their prescribed drill, opening the necessary exits.

Above all, members of the staff should remain calm and display no outward appearance of fear or excitement.

SUGGESTIONS FOR FIRST AID KIT

One inch compress on adhesive in individual packages.

Sterile gauze squares about three by three inches in individual packages.

Assorted sterile bandage compresses in individual packages.

Three triangular bandages.

Sterile gauze in individual packages of about one square yard.

Picric acid gauze.

Burn ointment such as five per cent tannic acid jelly.

Iodine, mild.

Aromatic spirits of ammonia.

Inelastic tourniquet.

Scissors.

Three inch splinter forceps.

Paper cups.

One inch and two inch roller bandages.

Wire or thin board splints.

Castor oil or mineral oil, for use in eyes. This should be sterile; may be obtained in small tubes.

★

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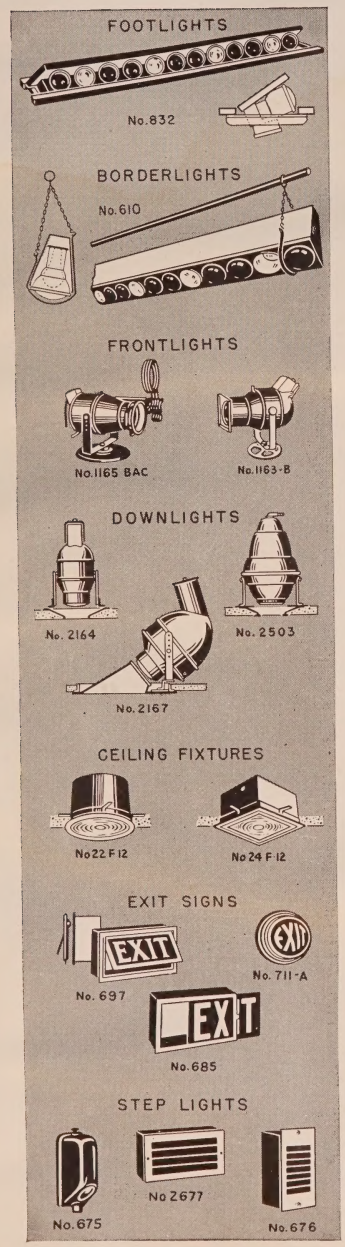
UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.

321 West 50th Street, New York, N.Y.

Telephone: Columbus 5-0130

Lighting for Theatre, Stage, and Auditorium



WHATEVER your requirements may be, in the nature of lighting equipment, we can probably supply your needs. As leading manufacturers in the field of theatrical and specialty lighting, we produce a varied and complete line of fixtures, apparatus, and accessories.

PRODUCTS

Stage lighting equipment of every conceivable form—including permanent and portable types; color lighting accessories, stage effects, repair parts, and supplies.

General and architectural lighting equipment—such as: inbuilt fixtures, cove strips, exit signs, aisle and step lights, black-out lights, outdoor floodlights, etc.

Special lighting devices for unusual needs or exceptional conditions—made to exact requirements.

SERVICES

Adequate facilities and an experienced staff assure satisfactory fulfillment of our commitments.

Our engineers are available for consultation in preparation of layouts, selection of equipment, or development of units for special needs.

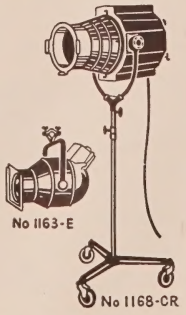
INQUIRIES

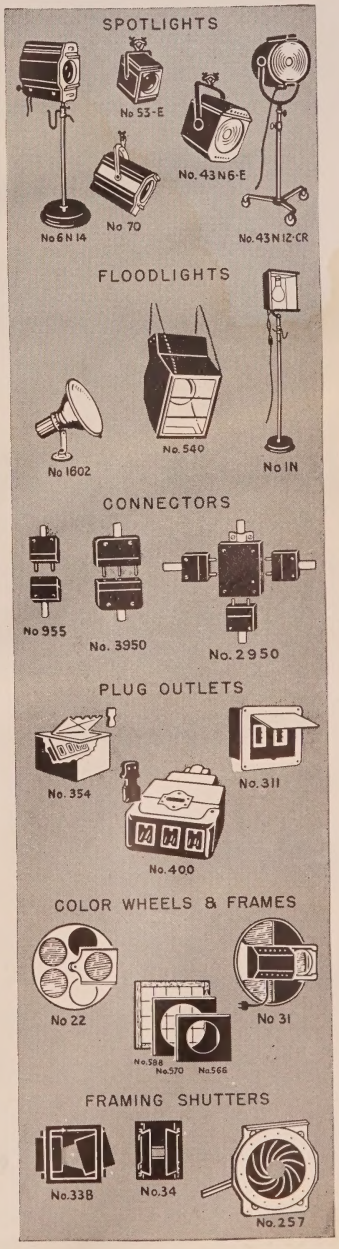
Your inquiries are invited. Bulletins giving information regarding our products, drawings for planning installations, or other particulars, are furnished on request.

KLIEGLIGHTS

High intensity beam projectors with ellipsoidal reflectors, lens system, and coordinated shutter arrangement which permits regulation of size and shape of light beam.

Portable units have an inbuilt four-way shutter system, with external controls to facilitate quick and easy adjustments. Permanently installed units have a drop-in shutter arrangement. Full particulars on request.





KLIEGL BROS.

A Detailed List of Names, Addresses and Personnel of the . . .

Supply Dealers of the U. S. and Canada

Carefully compiled and checked in each local territory it is believed that this is the only completely accurate record of specializing dealers. Individual stores can purchase product listings restricted to a uniform size for a nominal sum. Communication should be made directly to the publishing offices.

UNITED STATES

ALABAMA

QUEEN FEATURE SERVICE, INC.
1912½ Morris Ave.
Birmingham
Personnel—*Manager:* Miss Vivian Harwell
Salesman: J. Braxton Colley
Area Served—Alabama, Tennessee, Mississippi, Georgia and Northern Florida

CALIFORNIA

BRECK PHOTOPLAY SUPPLY CO.
1969 So. Vermont Ave.
Los Angeles
Personnel—*Owners:* J. E. Maguire and J. F. Maguire
Manager: J. E. Maguire
Counter Man: Stanley C. Gray
Area Served—Southern California, Arizona and Nevada

JOHN P. FILBERT CO.
2007 So. Vermont Ave.
Los Angeles
Personnel—*Owner:* John P. Filbert
Manager: Don McLaren
Salesman: Bob Beretta
Area Served—Southern California, Arizona and Southern Nevada

F. A. MILLS CO.
2202 So. Vermont Ave.
Los Angeles
Personnel—No information
Area Served—California, Arizona and Nevada

MOTION PICTURE ACCESSORIES CO.
2200 So. Vermont Ave.
Los Angeles
Personnel—*Owner and Manager:* J. B. Dabney
Salesman: Blaine Dabney
Area Served—Southern California

NATIONAL THEATRE SUPPLY CO.
1961 So. Vermont Ave.
Los Angeles
Personnel—*Manager:* Lloyd C. Ownbey
Office Manager: H. E. Patterson
Salesmen: Oscar Chiniquy, Henry Schick, C. L. Russell
Counter Man: Harold Cabellero
Area Served—Southern California, Arizona and Southern Nevada

PROJECTION EQUIPMENT & MAINTENANCE CO.
1975 So. Vermont Ave.
Los Angeles
Personnel—*Owners:* Chas. M. Fowler & Louis M. Wutke
Counter Man: Vernon Bascom
Area Served—California, Arizona

B. F. SHEARER CO.
1964 So. Vermont Ave.
Los Angeles
Personnel—*Manager:* R. C. Peacock
Salesmen: Glenn K. Slipper, Weldon Girard
Counter Man: Henry Grussing
Area Served—Southern California, Arizona, New Mexico and Southern Nevada

NATIONAL THEATRE SUPPLY CO.
255 Golden Gate Ave.
San Francisco
Personnel—*Manager:* R. L. Schultz, Jr.
Salesmen: R. W. Pries, R. H. Woelfl
Area Served—California, Nevada and Southern Oregon

PACIFIC COAST THEATRE EQUIPMENT CO.
250 Golden Gate Ave.
San Francisco
Personnel—*Owner:* J. G. Riley
Salesman: L. Riley
Area Served—California and Nevada

WALTER G. PREDDEY
187 Golden Gate Ave
San Francisco
Personnel—*Owner:* Walter G. Preddey
Manager: Robert O. Bemis
Salesman: Mr. Greywood
Area Served—California, Nevada, Oregon, Arizona, Hawaii, Alaska

B. F. SHEARER CO.
243 Golden Gate Ave.
San Francisco
Personnel—*Manager:* H. I. Tegtmeier
Salesmen: Wesley Rosenthal, Al Learman
Counter Man: Lute Janssen
Area Served—Northern California, Nevada, Southern Oregon and Hawaii

WESTERN THEATRICAL EQUIPMENT CO.
222 Golden Gate Ave.
San Francisco
Personnel—*Owner:* C. B. Paden
Salesmen: Chas. A. Wheeler, Robert W. Shover
Area Served—No Information

COLORADO

GRAHAM BROTHERS
546 Lincoln St.
Denver
Personnel—*Owners:* J. M. and H. W. Graham
Area Served—Colorado, New Mexico, Wyoming, Nebraska and Black Hills of South Dakota

NATIONAL Branches on this page are qualified to serve you with:

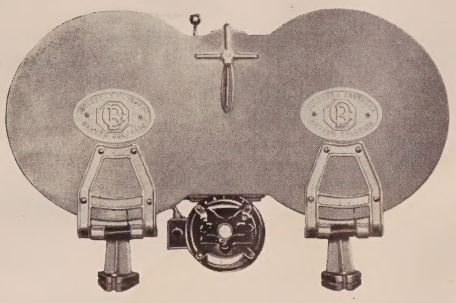
Simplex PROJECTION & SOUND

SIMPLEX HIGH LAMPS
HERTNER TRANSVERTERS
SIMPLEX PARTS
VALLEN CURTAIN CONTROLS
PEERLESS MAGNARC LAMPS
WALKER SCREENS
G-E MAZDA LAMPS
CRESTWOOD CARPETS
BAUSCH & LOMB LENSES
NATIONAL CARBONS
WAGNER SIGN LETTERS
NATIONAL FANS & BLOWERS

NATIONAL THEATRE SUPPLY COMPANY

• *and all other equipment and supplies of established merit!*

GOLDBERG BROTHERS
METAL PRODUCTS



NEW AUTOMATIC FILM REWINDER

Passed by the board of Fire underwriters, accommodates 15-inch reels and smaller . . . reels slip on spindles quickly and easily. The rewinder is equipped with an automatic stop.

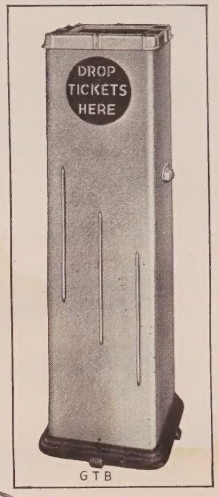
New Goldberg Rewinder is made of heavy metal, carefully machined . . . doors open on extra heavy counter-balanced spring hinges . . . a large handle keeps the door perfectly tight. A control handle for starting.

GOLDBERG TICKET BOX

Attractive looking, made of heavy high grade steel, baked enamel crackle finish and aluminum polished top. Made in two styles: G.T.B. has glass baffles and cast iron base. P.T.B. has no glass baffles nor cast iron base. Top has slot for depositing tickets.

Made in following colors:

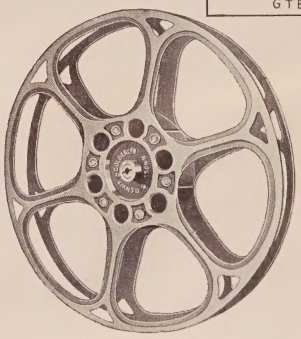
ALUMINUM RED
LIGHT BLUE



"NO DRAFT" SPEAKING TUBE

Prevents Drafts . . . Dependable
Good Looking . . . . Economical

You do away with colds, sore throat and the necessity for leave of absence once you install this efficient speaking tube. It's clever, good-looking and will fit any opening from 2¼" to 4¼". Consists of two rust resisting metal plates, chromium plated, with washers and a screw . . . easy to install.



GOLDBERG CAST ALUMINUM REELS

(Patented)

are the reels in the biggest demand today by projectionists . . . beautiful in appearance, carefully machined, they are light, strong, and substantially made. The patented lock holds the reel solid . . . runs perfectly true . . . 6 slots provide easy threading. Each packed in individual cartons, 2,000 ft.

Reels in the following sizes:

15" dia. 5" hub	14½" dia. 4" hub
14½" dia. 5" hub	14" dia. 4" hub

Approximate weight 2½ pounds each.

In ordering specify size of hub required.

AUTOMATIC ELECTRIC REWINDERS • CAST ALUMINUM REELS • TICKET BOXES
SPEAKING TUBES • METAL SHIPPING CASES • METAL FILM EXCHANGE REELS

IN THE INTEREST OF NATIONAL DEFENSE—it has become necessary for all manufacturers using aluminum and many other metals to curtail their normal activities and find adequate substitutes for critical products. Because of this, some of the acknowledged superior standard items shown above may be temporarily discontinued during the emergency. Where available substitutes can maintain the same standards of quality they will be used; but where this is impossible we invite our customers to communicate with us regarding repairs and part replacements which we may be able to effect in our factory.

ORDER FROM YOUR THEATRE SUPPLY DEALER

GOLDBERG BROTHERS, 3500 Walnut Street, DENVER, COLO.

NATIONAL THEATRE SUPPLY CO.
2111 Champa St.
Denver
Personnel—*Manager:* Jasper J. Morgan
Salesman: Joe B. Stone
Counter Man: J. Richard Lutz
Area Served—Colorado, New Mexico, Wyoming, Western Nebraska, Eastern Montana and Black Hills of South Dakota

CONNECTICUT

MODERN THEATRE EQUIPMENT CORP.
130 Meadow St.
New Haven
Personnel—*Owners:* Wallace Katz, J. H. Katz
Manager: Louis Phillips
Area Served—Connecticut

NATIONAL THEATRE SUPPLY CO.
122 Meadow St.
New Haven
Personnel—*Manager:* Wm. J. Hutchins
Salesman: Victor Cassella
Area Served—Connecticut

DISTRICT OF COLUMBIA

BEN LUST THEATRE EQUIPMENT
1001 New Jersey Ave., N. W.
Washington
Personnel—*Owner and Manager:* Ben Lust
Area Served—Maryland, District of Columbia, and Virginia.

FLORIDA

UNITED THEATRE SUPPLY CORP.
110 N. Franklin St.
Tampa
Personnel—*Owners:* O. R. Busler, F. L. Alig, Jr.,
Counter Man: Ralph Walden
Area Served—Florida, South Georgia, Cuba and the Bahamas

GEORGIA

CAPITOL CITY SUPPLY CO., INC.
161 Walton St.
Atlanta
Personnel—*Owners:* P. A. (Gus) King, Pres., O. J. Howell, V. P. & Mgr., L. V. King, Secy. & Treas.
Counter Man: James F. Willard
Area Served—Georgia, Tennessee, Alabama, Florida and Mississippi

NATIONAL THEATRE SUPPLY CO.
187 Walton St., N. W.
Atlanta
Personnel—*Manager:* J. C. Brown
Salesmen: R. M. Goldsmith, W. C. Alexander
Counter Man: Jas. G. Thigpen
Area Served—Georgia, Florida, Alabama and Tennessee

SOUTHLAND THEATRE EQUIPMENT CO.
183 Walton St., N. W.
Atlanta
Personnel—*Owners:* Samuel M. Berry and P. H. Savin
Salesman: H. L. Cheek
Area Served—Alabama, Georgia, Florida and Tennessee

WIL-KIN THEATRE SUPPLY, INC.
150 Walton St.
Atlanta
Personnel—*Sales Manager:* Harry M. Paul
Salesmen: Geo. Tarrany, Milton Mueller, Henry Thurmond
Counter Man: W. J. Wilson
Area Served—Alabama, Florida, Georgia, Eastern Tennessee.

ILLINOIS

ABBOTT THEATRE EQUIPMENT CO.
1311 S. Wabash Ave.
Chicago
Personnel—*Owner:* Harold Abbott
Counter Man: C. Kontos
Area Served—Illinois, Indiana, Wisconsin and Michigan

Sales and Service on—
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MOTIOGRAPH PROJECTORS
MIRROPHONIC DeLUXE SOUND
STRONG AND ASHCRAFT LAMPHOUSES—CYLEX LAMPS
BALDOR AND KNEISLEY RECTIFIERS
IRWIN SEATING CO. CHAIRS
DA-LITE SCREENS—DRAPERIES
LA VEZZI REPAIR PARTS
VALLEN CURTAIN CONTROLS
NATIONAL CARBONS
WESTINGHOUSE MAZDA PRODUCTS
MOHAWK CARPETS
GOLDE AND BEST SPOTLIGHTS
MIRROPHONIC
Specialists in repairing all types of projectors

JOE GOLDBERG, INC.
1245 So. Wabash Ave.
Chicago
Personnel—*Owner:* Joe Goldberg
Manager: Jack Lieberthal
Salesman: Mort Goldberg
Area Served—Northern Illinois, Indiana and Southern Michigan

MOVIE SUPPLY CO., LTD.
1318 So. Wabash Ave.
Chicago
Personnel—*Owners:* S. S. and M. A. Behrend
Area Served—Mail Order

NATIONAL THEATRE SUPPLY CO.
1325 So. Wabash Ave.
Chicago
Personnel—*Manager:* R. W. Dassow
Salesmen: M. Salkin, F. W. Keilback, O. Wells and E. Budd
Counter Man: M. Morrison
Area Served—Illinois, Northern Indiana and Iowa

STANLEY THEATRE SUPPLY CO.
1235 So. Wabash Ave.
Chicago
Personnel—*Owner:* Stanley Levine
Manager: D. Yormark
Area Served—Illinois and Indiana

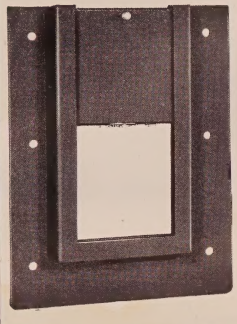
INDIANA

GER-BAR, INC.
442 N. Illinois St.
Indianapolis
Personnel—*Owner:* B. Hopkins
Salesmen: N. Barrie, Pete Ramsey
Area Served—Indiana and Kentucky

INDIANA THEATRE EQUIPMENT CORP.
316 N. Illinois St.
Indianapolis
Personnel—*Manager:* C. J. Williams
Area Served—Indiana and Western Kentucky

NATIONAL Branches on this page are qualified to serve you with:
Simplex PROJECTION & SOUND
SIMPLEX HIGH LAMPS
HERTNER TRANSVERTERS
SIMPLEX PARTS
VALLEN CURTAIN CONTROLS
PEERLESS MAGNARC LAMPS
WALKER SCREENS
G-E MAZDA LAMPS
CRESTWOOD CARPETS
BAUSCH & LOMB LENSES
NATIONAL CARBONS
WAGNER SIGN LETTERS
NATIONAL FANS & BLOWERS
NATIONAL THEATRE SUPPLY COMPANY
• *and all other equipment and supplies of established merit!*

"BEST" FIRE SHUTTERS STEREOPTICONS •SPOTLIGHTS•



"BEST" FIRE SHUTTERS MEET ALL INSPECTION LAWS

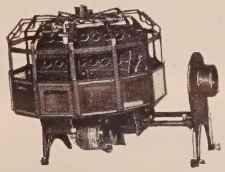
Protect yourself against fire and other emergencies in your projection room. Protect yourself with "Best" Fire Shutters—a shutter that satisfactorily meets all state and city inspection laws, which require gravity doors or shutters on portholes of projection rooms. "Best" Fire Shutters and "Best" Shutter Controls prevent smoke from spreading into auditorium. And they last, because they are made of heavy 10 gauge steel. Grooves for drop plates are welded to back plate. Drop plates are 1/4" plate—will always DROP. Complete and ready to install.

Extra grooves for 1/4" glass included on all Types "F," "SF," and "L" Shutters.

INFORMATION FOR ORDERING

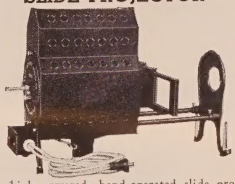
FIRST number is WIDTH, and SECOND number is HEIGHT. Give width of Projection Booth. Specify "WITH COUNTERWEIGHTS" if counterweights are wanted on the Type "SP" Shutters. When figuring openings for "Best" Port Shutters remember—(1) That the overall height of the shutter is always twice the height of the opening plus 5" for framework. (2) That the overall width is the width of the opening plus 6" for framework. (3) The overall width of a counterweighted shutter is the width of the opening plus 10" for framework. (4) Openings should not be spaced close enough together to cause one shutter to overlap another.

"BEST" AUTOMATIC SLIDE PROJECTOR



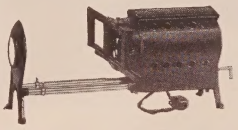
An ideal slide projector for continuous operation, comes in three sizes, 500, 1000 and 1500 watt. May be used in projection booth, in lobby or on roof with outdoor screen. Powered by heavy duty motor and completely foolproof. 500 watt model accommodates ten slides—1000 and 1500 watt models, twelve slides.

"BEST" 1500 WATT SLIDE PROJECTOR



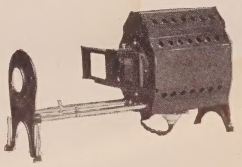
A high powered, hand-operated slide projector. Delivers twice as much light as a 1000 watt projector and is for use on exceptionally long throws or where an exceptional amount of screen illumination is needed. All "Best" Slide Projectors come complete with mirror, heavy-duty cord and switch. In addition, the 1500 watt models are equipped with Heat Absorbing Glass as a protection to the slides.

500 WATT BESTEREOPTICON



The ideal projector for the small theatre, classroom, lecturer, church, and photographer. High efficiency and low price make the 500 watt Bestereopticon unusually popular for distances up to 75 feet. A trial will convince you that this projector delivers screen results that are equal to those of much higher priced projectors. Leatherette Carrying Case available.

"BEST" 1000 WATT SLIDE PROJECTOR



A projector for general use that has found a place in theatres using high intensity lamps for their film projectors, and especially where the distance to the screen exceeds 75 feet. Lamp and mirror adjustments on ALL "Best" Slide Projectors are on the OUTSIDE where they are cool and easy to get at. Leatherette Carrying Case available.

"BEST" WONDER SPOTLIGHTS

400 Watt Model **Model "6"** **1000 Watt Model**

For Footlights, Spotting Lobby Displays or anywhere that a concentrated beam of brilliant white or colored light is needed. Easily adjusted for spot or flood. Come complete less bulb.

ACCESSORIES

Pipe Clamps
Hand Color Wheel for 400 watt Spot
Same as above but for 1000 watt Spot
Automatic Color Wheel for 400 watt Spot
Same but for 1000 watt Spot

FIXTURES FOR 150 WATT R-40 LAMP BULBS

No. 17 Lowboy Lamp Holder
No. 75 Clip Up Lamp Holder
No. 155 Automatic Color Wheel

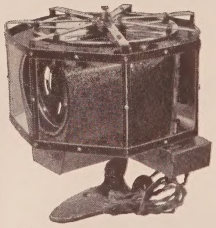
"Best" Pee Wee SPOTLIGHT

A 75 - 100 Watt Spotlight

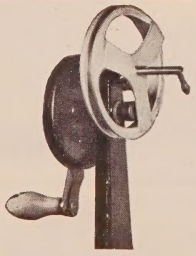
Now—a small, yet powerful light at an amazingly low price, FOR SHORT RANGE WORK—HIDDEN LIGHTING EFFECTS, ETC.

Bestomatic COLOR SPOTLIGHT

AUTOMATIC COMPACT POWERFUL



Seven colors used on color wheel, adjustable to spot or flood. Standard model for use on Alternating Current. DC model available.



"BEST" REWIND PULLEYS

FOR SIMPLEX REWINDS
Two Sizes—5" - 7"

"BEST" Copper Terminal Lugs

(SOLDERLESS)
Made to Last

"BEST" AUTOMATIC COLOR WHEEL

For the PAR-38 and R-40 Lamps

A compact motor-driven revolving color wheel enabling you to have a constant color change from the new G.E. Spotlight or Floodlight Lamps. Equipped with 13" color wheel, universal action "U" bracket mounting, and heavy base. Standard model for use on 110 volt 60 cycle current; other models available.

"BEST" HEAVY DUTY Carbon Savers

For all Low Intensity and Suprex Type Lamps (Suprex type not shown)

PRODUCTS OF

Best Devices Co.

10516 Western Avenue
CLEVELAND, OHIO

Order from your

Independent Theatre Supply Dealer

or

your nearest Branch of

National Theatre Supply Company

BEST DEVICES CO.

NATIONAL THEATRE SUPPLY CO.
436 N. Illinois St.
Indianapolis
Personnel—*Manager:* B. N. Peterson
Salesman: J. F. Bommerschelm
Counter Man: Ross Young
Area Served—Indiana and Kentucky

IOWA

DES MOINES THEATRE SUPPLY CO.
1121 High St.
Des Moines
Personnel—*Owners:* A. E. Thiele & R. G. Faulds
Manager: A. E. Thiele
Salesmen: R. G. Faulds & H. N. Sutton
Area Served—Iowa

NATIONAL THEATRE SUPPLY CO.
1102 High St.
Des Moines
Personnel—*Manager:* A. C. Schuyler
Salesmen: H. L. Frost, Don. Songer, H. W. Loeffler
Area Served—Iowa, Eastern Nebraska and Southern South Dakota

KANSAS

SOUTHWEST THEATRE EQUIPMENT CO.
309 W. Douglas Ave.
Wichita
Personnel—*Owner:* C. D. Peck
Area Served—Kansas, Missouri, Oklahoma, Arkansas, Texas, New Mexico

KENTUCKY

SHECKLER'S CENTRAL THEATRE SUPPLY
Rex Theatre Bldg.
Louisville
Personnel—*Owner and Manager:* Arthur V. Sheckler
Counter Man: M. I. Beeler
Area Served—Southern Indiana and Kentucky

FALLS CITY THEATRE EQUIPMENT CO.
427-29 So. Third St.
Louisville
Personnel—*Owner and Manager:* W. E. Carrell
Salesmen: J. Raymond Mattingly, Thomas P. McHugh, James E. Thompson
Area Served—Kentucky, Southern Indiana, Southern Ohio, Northern Tennessee

LOUISIANA

DELTA THEATRE SUPPLY, INC.
214 S. Liberty St.
New Orleans
Personnel—*Manager:* John F. Elzey
Counter Man: Herbert Wagvespack
Area Served—Louisiana, Mississippi, Southern Alabama and Northern Florida

ELECTRICAL SUPPLY CO.
201 Magazine St.
New Orleans
Personnel—*Manager:* J. Roors
Area Served—Louisiana

LOUISIANA MOTION PICTURE EQUIPMENT CO.
1414 Cleveland Ave.
New Orleans
Personnel—*Owner:* Wm. H. Castay
Counter Man: A. H. Crook
Area Served—Louisiana, Southern Mississippi and Southeastern Alabama

NATIONAL THEATRE SUPPLY CO.
220 S. Liberty St.
New Orleans
Personnel—*Manager:* W. A. Hodges
Salesman: T. W. Neely
Counter Man: H. J. Petithory
Area Served—Louisiana, Alabama, Florida and Mississippi

MARYLAND

J. F. DUSMAN, INC.
213 N. Calvert St.
Baltimore
Personnel—*Owner:* J. F. Dusman
Salesman: H. C. Dusman
Service: J. A. Metzger
Counter Man: Morris Dusman
Area Served—Maryland, Delaware, District of Columbia, Virginia, Eastern West Virginia

NATIONAL THEATRE SUPPLY CO.
417 St. Paul Place
Baltimore
Personnel—*Manager:* N. C. Haefele
Salesman: L. J. Wallman
Counterman: I. K. Johnson
Area Served—Maryland, District of Columbia and Virginia

MASSACHUSETTS

CAPITOL THEATRE SUPPLY CO.
28 Piedmont St.
Boston
Personnel—*Owners:* C. M. Cox, Pres.; K. R. Douglass, Treas.; L. L. Foster, Sec'y; F. Gray, Asst. Sec'y
Manager: K. R. Douglass
Salesmen: W. Hawkins, M. Sickles, D. Pickering
Counter Man: F. Sullivan
Area Served—Massachusetts, New Hampshire, Vermont, Connecticut, Maine, Rhode Island

Sales and Service on—

RCA SOUND—MAGIC SCREENS— HEARING AIDS—EQUIPMENT MAINTENANCE—MAGICOTE LENS COATING—RECORD PLAYERS—BENWOOD-LINZE RECTIFIERS—WESTINGHOUSE LAMPS

BRENKERT PROJECTION LAMPS
BRENKERT PROJECTORS—NATIONAL CARBONS
BAUSCH & LOMB LENSES—BALDOR RECTIFIERS
ROBIN IMPERIAL GENERATORS—DALITE SCREENS
IDEAL CHAIRS—VALLEN CURTAIN CONTROLS
MOTIOGRAPH PROJECTORS—ASHCRAFT LAMPS

—and a full line of Building and Remodeling supplies including: Interior Decorating, Draperies, Rubber Mats, Fans and Blowers, Air Conditioning, etc.

JOE CIFRE, INC.
37 Winchester St.
Boston
Personnel—*Owner and Manager:* Joe Cifre
Area Served—New England

INDEPENDENT THEATRE SUPPLY CO., INC.
28 Winchester St.
Boston
Personnel—*Manager:* E. K. Hosmer
Salesman: R. Quint
Counter Man: J. B. Devlin
Area Served—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island

NATIONAL Branches on this page are qualified to serve you with:

Simplex PROJECTION & SOUND

SIMPLEX HIGH LAMPS
HERTNER TRANSVERTERS
SIMPLEX PARTS
VALLEN CURTAIN CONTROLS
PEERLESS MAGNARC LAMPS
WALKER SCREENS
G-E MAZDA LAMPS
CRESTWOOD CARPETS
BAUSCH & LOMB LENSES
NATIONAL CARBONS
WAGNER SIGN LETTERS
NATIONAL FANS & BLOWERS

• *and all other equipment and supplies of established merit!*

SERVING THE NATION — NATIONAL THEATRE SUPPLY COMPANY — SERVICE • SERVICED • GUARANTEED

NATIONAL THEATRE SUPPLY CO.
40 Piedmont St.
Boston
Personnel—*Manager:* H. J. McKinney
Asst. Manager: Rudy Wetter
Salesmen: Ernie Comi, Roy Hammell, Dan Fleetham
Counter Man: Emil Franzi
Area Served—Maine, Massachusetts, New Hampshire, Vermont, Rhode Island

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1620 Notre Dame St., West
Montreal
Personnel—*Gen. Manager:* F. E. Peters
Gen. Sales Mgr.: L. C. Pearson
Area Served—Dominion of Canada

GENERAL THEATRE SUPPLY CO., LTD.
366 Mayor St.
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Personnel—*General Manager:* R. B. Burko
Manager: H. H. Burko
Area Served—Quebec and Maritime Provinces

PERKINS ELECTRIC CO., LTD.
2027 Bleury St.
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Personnel—*Owner:* Mrs. G. F. Perkins
Manager: L. M. Bleackley
Counter Man: Gaston Desrosiers
Area Served—Canada

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222 Water St.
St. John's
Personnel—No Information
Area Served—No Information

ONTARIO

COLEMAN ELECTRIC CO.
258 Victoria St.
Toronto
Personnel—*Owner:* Harry Coleman
Area Served—All of Canada

DOMINION SOUND EQUIPMENTS, LTD.
114 Bond St.
Toronto
Personnel—*District Manager:* E. Thomson
Service Manager: H. Goldin
Salesman: J. D. McCulloch
Area Served—Ontario

GENERAL THEATRE SUPPLY CO., LTD.
104 Bond St.
Toronto
Personnel—*Gen. Manager:* A. B. Burko
Manager: P. D. Brown
Area Served—Ontario

PERKINS ELECTRIC CO., LTD.
277 Victoria St.
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Personnel—*Manager:* L. F. Hoffman
Salesmen: R. V. Shale, W. Wallace, W. Walterhouse
Counter Man: F. Ross
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DOMINION SOUND EQUIPMENTS, LTD.
820 Cambie St.
Vancouver
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Engineers: W. F. Graham, A. Jackson, J. E. F. Graham
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THEATRE EQUIPMENT SUPPLY CO.
906 Davie St.
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Personnel—*Owner:* H. I. Howard
Salesman: I. Baxter
Counter Man: J. Dibben
Area Served—British Columbia, Alberta and Yukon Territory

MANITOBA

CANADIAN THEATRE SUPPLY CO.
510 Canada Bldg.
Winnipeg
Personnel—*Owner and Manager:* V. Armand
Counter Man: H. Ferman
Area Served — Western Ontario, Manitoba, Alberta and British Columbia

DOMINION SOUND EQUIPMENTS, LTD.
65 Rorie St.
Winnipeg
Personnel—*Manager:* A. T. McCormick
Area Served—Western Ontario, Manitoba and Saskatchewan

J. M. RICE & CO.
202-A Canada Bldg
Winnipeg
Personnel—*Owner and Manager:* J. M. Rice
Salesman: C. Carphin
Area Served—Western Ontario, Manitoba, Saskatchewan, Alberta, British Columbia

THE THEATRE CATALOG

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★1942★

Air Conditioning

THUMB-DEX
Patent No. 1579575

Points of Maintenance

AND SUPPLY DUE TO CONDITIONS

With each passing day, your air-conditioning equipment takes on the new value of being irreplaceable. Here is advice on maintaining it.

—by B. P. Edelman

NO THEATRE OWNER or manager has to be "hit on the head" today to realize that proper and intelligent maintenance of his ventilating, cooling, or complete air conditioning system is more important than ever before. Just as we all closely watch and care for the tires on our automobile for patriotic as well as personal reasons, so must every person upon whose shoulders rests the responsibility for theatre equipment maintenance give that much more interest and active attention to his mechanical equipment.

There are factors which, in the past, have seemed unimportant, and were, in fact, of such minor importance that they could be brushed over. The picture is now entirely changed. A small detail such as a blower bearing that cannot be replaced, an electric motor that refuses to function properly; these and other points of maintenance might, under present conditions, throw a literal "monkey-wrench" into the most expensive, elaborate, and certainly the most important air conditioning system.

The purpose of the following paragraphs will, therefore, be to put forth in very plain language just what should and can be done to prolong the life of equipment, which articles will be most difficult, if not impossible to replace, and what changes in operation can be made to avoid undue and unnecessary wear and tear. It is the patriotic duty of every theatre owner and manager to keep going. "The show must go on", and the correct and satisfactory operation of his system of ventilation, comfort cooling, heating, or complete air conditioning is vital and important to that end. No theatre, large or small, should overlook the possibility of a break-down which, formerly of short inconvenience, might be impossible of repair for the duration of the present emergency. Therefore, the following points are outlined in order that, regardless of the type of system our readers have in use, they can take those necessary and important steps to protect their investments, and to assure that they can continue to provide healthful and comfortable conditions for their patrons.

BLOWER VENTILATING SYSTEMS

The blower is the "heart" of the ventilation, cooling, heating, or air conditioning plant. It is not a mysterious "gadget", and with proper care and attention it will run year in and year out with a minimum of maintenance cost. With the blower, of course, the electric motor and starter must also be checked. Keep these simple rules in mind:

Oiling and Greasing

If your blower is equipped with *ball bearings*, they ordinarily would require attention just once a season, but should be checked each month. The proper lubricant for a ball bearing is a light grease. Do not allow any dirt or grit to get into the bearing housing, and do not pack the grease in tight. Just fill to the level of the opening. The bearing should be removed, disassembled, and thoroughly cleaned with kerosene, wiped dry, and repacked with fresh new grease at the start of each new season. Have this done by a competent and experienced workman because the theatreman may have extreme difficulty, and may not even be able to get replacements of ball bearings for the duration of the present national emergency.

If the bearings are *sleeve type*, use a good grade of oil as recommended by the bearing manufacturer.

Be sure that all bearings are kept properly adjusted so they do not become out of alignment. A bearing out of alignment will wear out in fairly short order.

If the blower is equipped with a hydraulic variable speed pulley, the bearings in the clutch should receive the same attention as the main blower shaft bearings. All joints of the hydraulic control must be kept tight, and this refers also to the joints in the tubing of the control, between the blower and the control pumps. A loss of pressure will indicate a leak somewhere in the joints of the tubing. It is also important to keep an extra set of friction discs for the clutch on hand to replace worn out discs. In connection with the control pump or pressure units, do not try to repair those parts in the field but send them in to the factory from which they were purchased so that there will be certainty of having them correctly repaired, and of having the proper parts installed or replaced.

Care of Belts.

A V-belt requires less tension than a flat belt. If the belts are too tight, they will wear out sooner, and, this is very important, there will be trouble getting belts replaced. With proper care belts will last for a number of years. Check them every few weeks, and if they seem to be getting too loose, tighten them, but be sure to leave some slack. Normal use will require tightening to compensate for wear.

Motor and Starter.

If, for any reason, the pulley must be removed from the motor, be sure it is not driven back onto the motor shaft. This would injure the motor bearings as well as the shaft and the pulley. Instead, sandpaper the shaft or ream out the pulley until it can be put on by hand. Set the set-screws tight, especially when they are used instead of a key. Use a light, high grade grease for the ball bearings, or a light, high grade oil for the sleeve bearings. Be sure that the motor is free from water, oil, and dirt, and that at the end of the season it is carefully covered over for protection.

General Care and Attention.

The pulley on the motor and the pulley on the blower should be carefully lined up, and must be kept in line. If a misalignment occurs, there will be power loss, and the belts will wear down. Have the electrician check to keep the motor properly fused. The line fuses should be three times the ampere rating of the motor at full load, where no compensator is used, and should be two and a half times the ampere rating of the motor at full speed, if a compensator is used. Where a magnetic starter used on the motor repeatedly kicks out, do not wedge the starter in position, but be sure to call in a competent electrician who can check the wiring, the motor, and switch.

The following parts may be extremely difficult to secure, and after some time may not be available at all. We are stressing this because while the money value of these parts is not a great deal, their worth to the user is indeed of high value:

1—Ball bearings
2—V-belts
3—Electric motors and switches.

EVAPORATIVE COOLING SYSTEM (CITY WATER WASHED AIR)

There are perhaps more systems of this type of system in operation among theatres throughout the entire country than any other. The evaporative cooling system does not use a compressor, ice machine, or cooling coils. Its basis, of

course, is the blower, plus the spray type cooling chamber (air washer). This type of evaporative cooling system has been in use for a number of years, and there will be such systems found in almost every locality. Within the last few seasons, an evaporative cooling system which does not use the spray type cooling chamber but, instead, an evaporative type pad or mat, has sprung into popularity, and such systems require considerably less attention because of the simplicity of the equipment, itself. We will deal with all of this equipment so that owners and operators of any type evaporative cooling system can take proper measures to protect against costly shut-downs.

Blower, Motor and Control.

Since these parts are identical to the blower, motor, and control used in a blower ventilating system, refer to the preceding paragraphs in which we have suggested how to best guard against trouble and what parts may be difficult or impossible to replace.

Cooling Chamber.
(Spray type air washer)

There is not a great deal that can go wrong or that may need replacement here. However, these precautions should be taken. Drain the water from the tank, clean out the tank, and then refill it at least once a week during the summer season when the air washer is being operated. While the water is being drained, the screen in the suction chamber should be scrubbed and dirt cleaned out of it before it is replaced in the cooling chamber. The spray nozzles should be cleaned once a month, or oftener. Sometimes dirt from the water will clog one or more of the nozzles. When this happens, the nozzle head can be removed with a wrench, cleaned thoroughly, and then put back on.

The water level in the air washer should be watched so that it is properly filled to the correct level. The water line to the float valve should remain open so that the water may freely enter the tank of the cooling chamber when required. The float valve regulates the admission of the new fresh water, of course. At the end of the operating season, it is extremely important that the water be completely drained from the tank, and the tank then cleaned out so it will be ready for the following spring. Paint the water tank on the inside with a rust resisting paint, as this will greatly prolong the life of the cooling chamber. In addition to the tank, however, all of the piping to and from the air washer should be completely drained. For this purpose, most manufacturers provide a plug in the spray header for this purpose. One might just as well at the same time remove the overflow pipe and put grease on the pipe threads to prevent rusting.

Recirculating Pump and Motor.

The bearings on the motor which drives the pump must be properly lubricated, and must be checked so that dirt and grit cannot enter the housing. Here again remember that the bearings are going to be difficult to obtain, and that proper lubrication of the bearings in the motor is vital. On the pump, the packing glands should be examined periodically. When the pump is being started up at the beginning of the season, it should be rotated a few revolutions by hand to be sure there is no binding due to misalignment, pipe packing, etc.

The same precautions with respect to keeping the motor properly fused as were given in preceding paragraphs should be followed out. Also, the pump bearing should be lubricated with vaseline or light high-grade grease, and the pump itself should be primed. At the end of the season, it is very important to drain the pump casing by removing the plug at the bottom of the casing which is provided for that purpose. Wipe the pump shafting and the bearings with waste soaked with oil to prevent rusting, and cover both pump and motor with canvas or some other adequate protection.

DEEP WELL AIR CONDITIONING SYSTEMS.

Blower, Motor and Control.

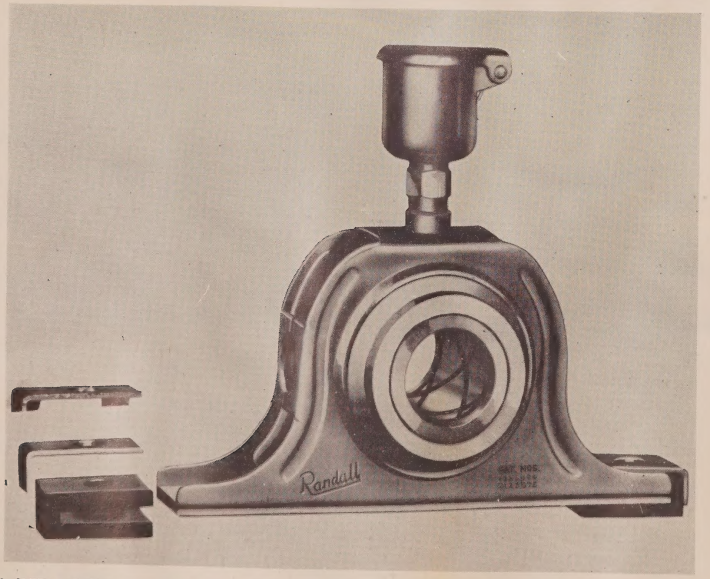
Here again, the same blower, motor, and control are present, and need constant checking to guard against later troubles. In normal times, the blower is one item which probably has received less care, and has given less trouble than any other mechanical piece of equipment that we can recall at the moment. However, knowing what vital parts can go wrong, and which cannot be replaced, we repeat the words of caution which are intended solely for complete protection.

Spray Type Dehumidifier. (Air Washer)

If the system uses a spray type dehumidifier (incorrectly called air washer) the points mentioned in reference to the air washer used with the evaporative cooling system should also be followed out. Although the type of cooling chamber is somewhat different, the same principles of care and attention are involved. However, there are additional matters that should be checked as follows:

If the cold water is admitted to the cooling chamber through an automatically controlled cold water valve, the plumber should be called in to make certain that the valve has been correctly drained of water at the end of the season, and that it is functioning properly when the system is placed in operation the following spring. The fresh water line should be cut off so that no water will remain in this line during the winter season when the system is not operating. There is little probability of trouble from the cold water valve, but these precautionary measures are advised.

If the system uses coils through which cold water is run, make doubly sure that every bit of water has been drained from the coil at the end of the operating season. Water remaining in the coils will freeze, expand, and split the tubes, or the pipe bends. Copper and aluminum coils cannot be replaced during the present



A SLEEVE TYPE BLOWER BEARING as used by U. S. Air Conditioning Co. and others, is a vital spot that needs regular oiling and proper adjustment. With both of these, however, it will last forever.

emergency, and although coil manufacturers are now working on steel coils, loss due to system shut down and cost of replacing these expensive materials will indeed be great. It is the duty of everyone during these times to protect his equipment, and thus require a minimum amount of the critical materials which are being set aside strictly for the Defense of our country.

REFRIGERATION AIR CONDITIONING SYSTEMS

Blower, Motor and Starter.

Whether the blower equipment is installed as a separate unit or is combined in package form with compressor and coils, it still requires adequate attention. The blower bearings should be checked, and properly lubricated; belts must be kept in alignment, with proper tension maintained. Motor and starter must be checked, oiled, and correctly used. The air handling equipment must operate. otherwise there will be no service or value whatever from your other air conditioning apparatus.

Cooling Chamber or Coils.

Whether the system employs coils or spray type cooling chamber (also called dehumidifier, air washer, etc.,) the same points covered by the preceding section are here referred to.

Compressor and Compressor Motor.

The motor which operates the compressor must, of course, have the same care and attention as any other electric motor. Proper oiling or greasing and a periodic check of the wiring and fusing will assure that the motor remains at its proper efficiency. Since motors and parts for motors may be very difficult to obtain, these customary rules will indeed warrant that the operating engineer, or whoever is charged with the responsibility of the system, keep close touch, and make regular check-ups of these parts. One of the leading manufacturers of air conditioning systems for theatres recently put out a bulletin, and outlined the following items or points which are to guide the operator whose duties include maintenance of the compressor:

1. Clean crankcase
2. Check all fittings and joints for leaks
3. Pump system down and shut all valves
4. Check alignment of motor sheave
5. Clean and oil motor bearings
6. Check water pump

Coil Section.

There are, of course, certain accessories or controls used in a refrigeration system which are not required with deep well or evaporative cooling plants. The following additional suggestions are given, with particular respect to the coil section and include points of check-up which will apply to the "package" type equipment as well as to the more common central station type system:

1. Clean liquid line strainer
2. Check solenoid valve
3. Clean and check all bearings
4. Check pulley and belt alignment (package type units)
5. Touch up inside of cabinet paint and mastic (on cabinet or package units)

Condenser Section.

Many air conditioning systems have as an important part an evaporative condenser. In fact, most installations made in more recent years include the evaporative condenser, the function of which is to cut down the water consumption of the system as a whole and, at the same time, increase the efficiency of the job. One manufacturer is now building refrigeration apparatus for theatres which includes the evaporative condenser section as an integral working part of the complete system, and on these units, therefore, proper care and maintenance of the condenser section is just as important as any of the other parts. Watch and check the following points:

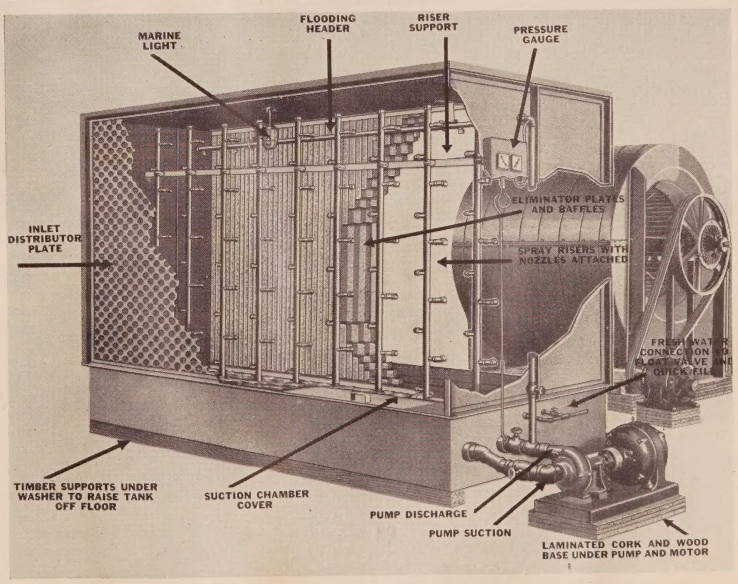
1. Clean and inspect bearings
2. Paint inside water tank with Zinc Chromate or other rust resisting paint
3. Touch up inside paint
4. Set pulley and belt alignments
5. Paint receiver
6. Recondition (if necessary) spray headers
7. Check all coils and pipe joints for leaks

It is pretty well agreed that operation of refrigeration systems has been comparatively simplified in the past few years, and that with normal care and attention, a well designed refrigeration system will function with a minimum of difficulty. However, for those who are located where servicing by a reputable refrigeration service company is available, it is recommended that the compressor be checked at the end of each season, and then placed in operation by a good refrigeration mechanic at the start of the new season. A compressor is another form of pump, and once its workings are understood, and the refrigeration mechanic does know the machine, serious trouble can be pretty well done away with. Many communities have refrigeration service companies who will operate under a service contract, whereby they inspect and service the component parts of the system once or twice a month during its operating season, and give it a thorough checkup at the beginning and the end of each season.

HEAT CORES

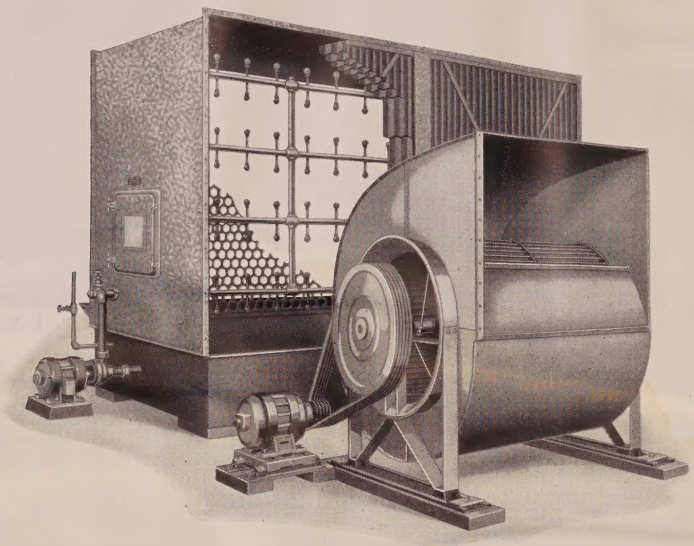
The majority of complete air conditioning systems now operating in theatres include heating and winter air conditioning. Thus, when the compressor and cooling sections have been shut-down, the heating coils and controls should be inspected before winter operation starts. A great deal of care for the heating coils is not required, so we will just mention the obvious points:

1. Brush off the surface of the coils once or twice during the season, or as necessary.
2. Check the steam traps to make sure that they are not stuck or otherwise not functioning. If there is a cold coil or if a section of the coil remains cold, have the plumber or steamfitter check the steam line and traps.



A SKELETONIZED VIEW of the blower and air-washer assembly.

Comfort Cooling Equipment



SELECTION CHART

FAN—CLASS I THEATRE AIR WASHER—SPRAY PUMP AND MOTOR COMBINATIONS

SYSTEM	FAN DATA							AIR WASHER DATA			SPRAY SYSTEM AND PUMP DATA									
						Motor					For Lowering the Dry Bulb Temperature of the Entering Air 60% of the (†) Wet Bulb Depression.					For Lowering the Dry Bulb Temperature of the Entering Air 70% of the (†) Wet Bulb Depression.				
C.F.M.	Fan Size	O.V.	* R.P.	RPM	BHP	HP	RPM	Size Washer Class I	Number of Nozzles	Free Area Sq. Ft.	G.P.M.	Head in Feet	Size Pump	Pump RPM	Pump Motor	G.P.M.	Head in Feet	Pump Size	Pump RPM	Pump Motor
11000	100	2000	.44	348	1.93	3	1750	101	60	35.75	60	40	1½x1½	1740	1½	70	45	1½x1½	1740	1½
17000	101	2000	.62	309	3.56	5	1750	101	60	35.75	65	45	1½x1½	1740	1½	75	55	1½x1½	1740	1½
20000	105	1370	.75	235	4.02	5	1150	101	60	35.75	70	50	1½x1½	1740	2	84	65	2x2	1740	2
25000	105	1715	.51	209	4.20	5	1150	105 A or B	96	62.4	96	40	2x2	1740	2	112	45	2x2	1740	3
30000	105	2050	.62	234	6.60	7½	1150	105 A or B	96	62.4	104	45	2x2	1740	2	130	60	2x2	1740	3
35000	108	1600	.76	195	7.20	7½	1150	105 A or B	96	62.4	110	50	2x2	1740	3	138	70	2½x2	1740	5
40000	108	1830	.55	178	7.40	7½	1150	108	144	93.5	150	45	2x2	1740	3	175	60	2½x2	1740	5
45000	108	2060	.62	194	9.82	10	1150	108	144	93.5	162	50	2x2	1740	3	202	70	3x2½	1740	7½
50000	108	2290	.71	211	12.82	15	1150	108	144	93.5	175	60	2½x2	1740	5	223	80	3x2½	1740	7½

From P. 2—Bulletin A23029. Supplement to P. 16—Bulletin A22029.

C.F.M.—Cubic feet of air per minute.

O.V.—Outlet velocity at fan discharge in feet per minute.

(*) R.P.—Resistance pressure in inches of water gauge. (Includes ¼ inch water gauge over requirements for overcoming duct and other resistance.)

R.P.M.—Revolutions per minute.

B.H.P.—Brake horsepower.

G.P.M.—Gallons of water per minute.

Head in Feet—Pressure against which pump operates when handling the required capacity of water.

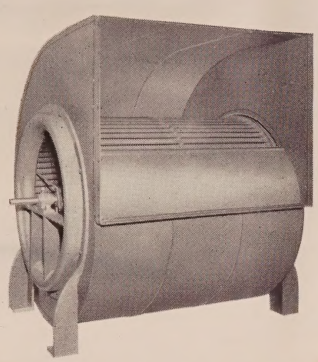
(†) **Wet Bulb Depression**—is the difference in degrees (F.) between the dry bulb temperature and the wet bulb temperature of the air. In most localities, it is desirable to select the pump and motor for lowering the dry bulb temperature of the entering air 60% of the wet bulb depression, to provide the most comfortable conditions in the theatre without over-humidification.

In climates such as encountered at Denver, Colorado, where the humidity is ordinarily low, the pump and motor can be advantageously selected for lowering the temperature of the entering air 70% of the wet bulb depression.

Write for Bulletin A-22029 for Complete Details.

NATIONAL THEATRE SUPPLY COMPANY—*All Branches*

Theatre Fans and Air Washers



THEATRE FANS

1. Designed and built especially for theatres by the world's foremost manufacturer of cooling, heating, ventilating, conditioning and allied equipment.

2. Ratings are certified and are in accordance with the standard test code for centrifugal and propeller fans adopted jointly by the N.A.F.M. and A.S.H. & V.E.

3. Operates at a lower speed for a given capacity than any other type of fan.

4. For a given speed it delivers more air per revolution than any other type fan.

5. It is economical in power consumption, quiet in operation, smooth in performance, durable, and occupies a minimum amount of space.

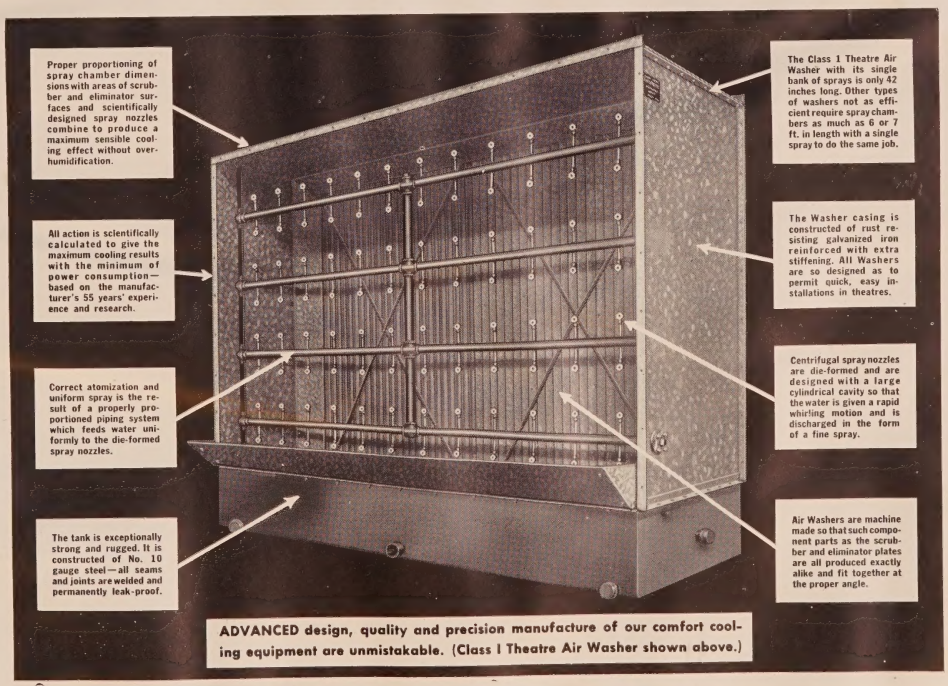
6. THE NATIONAL THEATRE SUPPLY FAN is rugged and strong but light in over-all weight.

THREE WAYS TO COMFORT

1 AIR IN MOTION—For the refreshing, cooling effect of an ample, circulating supply of fresh, outdoor air, NATIONAL THEATRE SUPPLY FANS are the first step in comfort cooling. They are designed and built especially for theatres . . . smooth and quiet in performance, durable, compact, and capable of moving tremendous quantities of air, year in and year out.

2 WASHED AIR—NATIONAL THEATRE SUPPLY CLASS I AIR WASHERS cleanse, purify and freshen the air, remove bacteria-laden dust and water-soluble odors, and have a remarkable cooling effect (by evaporative cooling). Air is brought into intimate contact with water, then sweeps through the theatre like the fresh breeze that follows a rain. Additional cooling effect is provided when cold "well water" is used. (See cooling by "chilled" air, below.)

3 "CHILLED" AIR—NATIONAL THEATRE SUPPLY CLASS II AIR WASHERS (Dehumidifiers) give remarkable Comfort-Cooling effect when "well water" 55° F. or colder is available. Utilizes the cooling effect of the cold "well water," and also washes water-soluble dust and odors from the air. Used with your present or new National Theatre Supply Fan, the Class II Washer provides tremendous quantities of clean, moving, "chilled," nature conditioned air. If you have "cold water" in limited quantities, it can be used in combination with recirculated city water, either with the Class II Washer or Class I Washer.



ADVANCED design, quality and precision manufacture of our comfort cooling equipment are unmistakable. (Class I Theatre Air Washer shown above.)

GENERAL INFORMATION

Common-sense operation of the system will prolong its normal life. Don't expect the ventilating, comfort cooling, or air conditioning system to dance a jig or do more than one has a right to expect from it. Just as one would not expect to run an automobile constantly at a 70 mile per hour speed, so one should exercise judgment in operation of his mechanical equipment.

The blower, the ticker or "heart" of the system from the standpoint of air handling, was designed by its manufacturer to operate at a certain normal speed. Do not attempt to increase this speed beyond what is recommended by the blower manufacturer. Not only will that cause more wear on the blower shaft and bearings, but it may likely overload the motor.

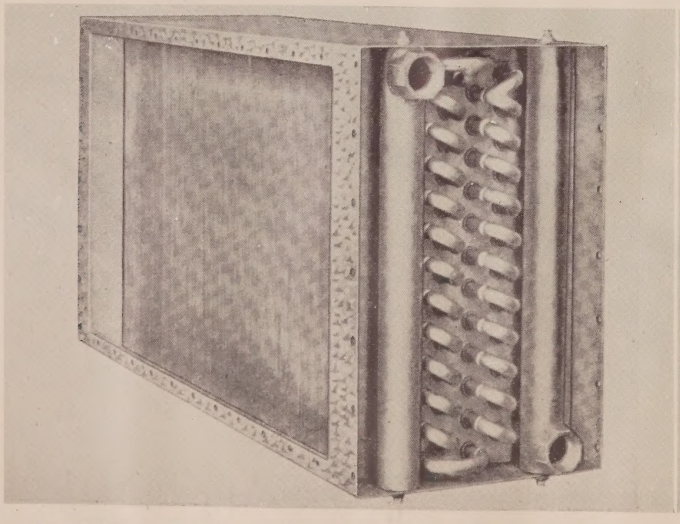
If there is reason to believe that the motor is not functioning properly or is becoming overheated, shut it off and call in an electrician. He can take an ammeter reading which will show exactly the wattage the motor is drawing. He can then compare that with the nameplate rating shown on the motor itself to determine if it is overloaded. A change in the pulley ratio between the blower pulley and motor pulley can then be made so that the blower speed will not be such as to overload the motor or, if required, one may have to get a larger motor to replace the one in use. While this is done, the electrician should make sure that the type of control now used has overload protection built-in or that the line has been correctly fused to guard against motor overload. Accidental means can occasionally cause the motor to overload, such as a sudden release of air resistance (static pressure) against which the blower and pulley sizes were selected. Sometimes just leaving an equipment room door wide open will cause this release of pressure and a subsequent motor burn-out.

B. P. Edelman was graduated from the University of Minnesota, and has been associated with the U. S. Air Conditioning Corporation since 1929. During that time he has been active in the theatre comfort cooling field, which has comprised a good percentage of total volume of the U. S. Air Conditioning Corporation. In 1938 he was appointed sales manager of the theatre division of the company, and in 1939 was made general sales manager, which includes the theatre, commercial, and industrial divisions. The company estimates that it has equipment in approximately 7000 domestic theatres, including blower ventilating systems, evaporative cooling systems, cold water cooling systems, and mechanical refrigeration.

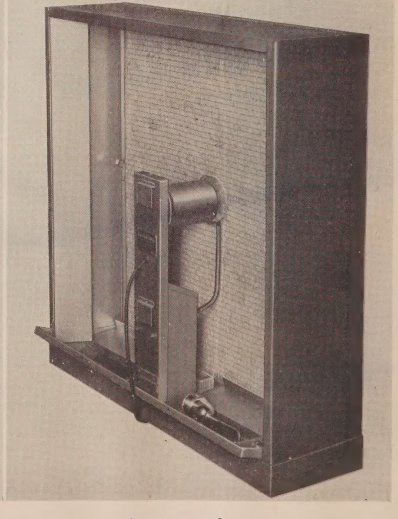
As this article is being written there are no Governmental restrictions on the purchase or sale of blower equipment other than what might be caused by shortage of materials, such as bearings and belts, which are difficult to procure. If the present blower equipment is in such condition that, perhaps because of long usage there is a probability it may give out, it still can be replaced. However, there is no need to become unduly excited if the blower is of modern design, built and installed within the last 8 or 10 years, and apparently is in good operating condition.

Whether air washers and dehumidifiers can be replaced is difficult to state at present. This will depend upon the availability of galvanized steel. While copper bearing steel cannot be used except on defense applications, the use of galvanized iron has not been prohibited. At present, air washers and dehumidifiers are being built, and they may be available for sometime to come. However, it must also be kept in mind that motors, starters, and pumps are required for a complete system, and these items are becoming needed more and more in the national defense program. Evaporative coolers are in production at least by one of the large manufacturers at present, and can be purchased for immediate installation as this article goes to press.

Manufacturers in the air conditioning industry are doing their utmost to cooperate with the leaders of our Government in making available for national defense purposes as much of their production facilities and inventories as can be utilized for the national good. However, exhibitors may be assured that these same manufacturers are fully cognizant of their responsibility to every customer who has purchased equipment of its manufacture, and the industry as a whole is desirous of continuing to serve its theatre customers in every way possible consistent with the restrictions and material requirements of the defense program.



A COLD WATER COIL can have little happen to it, but it can freeze or clog up. Give it a little attention also.



A mat or pad type EVAPORATIVE COOLING CHAMBER.

AIR CONDITIONING ADDS THE NEW . . .

Electrostatic Air Cleaner

Much more efficient than current filter blocks, this new development promises to really eliminate troublesome dust and dirt.

by Henry Gitterman

HISTORY—The theory of electrostatic precipitation is not new. In 1924 Hohlfield described the action of an electrical discharge upon smoke. However, no practical significance was attached to this discovery.

In 1884 Sir Oliver Lodge made the first practical use of the principle of electrostatic precipitation in the removal of fumes from a lead smelter.

Around 1906 Dr. Cottrell was successful in making use of this principle in the removal of fumes in zinc and lead smelters. Dr. Cottrell was able to patent his method, turning the patent over to the Research Corporation. This corporation has been successful since in collecting troublesome fumes in any number of industries. Nearly all of us are familiar with the Cottrell Precipitators which this corporation has installed in the smokestacks of many of our public utilities. The Cottrell system uses extremely high voltages and high currents, which in turn cause the generation of huge amounts of ozone. Therefore, this system has never been practical in cleaning atmospheric air for breathing purposes or where the action of ozone could be detrimental to product or equipment.

PRINCIPLE—It was not until 1931 that G. W. Penney, manager, Electro-Physics Division, Westinghouse Research Laboratories, was able to announce an air cleaner using the principle of electrostatic precipitation which generated practically no ozone. The functions of charging and collecting the solid particles in the air were separated, and the necessary operating voltages reduced to 13,000 volts maximum. This was accomplished through the use of a collector cell, consisting of cylindrical rods alternating with fine tungsten wires. Thirteen thousand volts are applied between the wire and the rod, creating a strong electrostatic field. As the particles in the air stream pass through this field, all of the particles receive a positive charge. Immediately following this electrostatic field, in the line of air flow, are placed parallel plates 5/16″ apart. These plates are charged with 6,000 volts D.C. Since unlike charges attract, the positively charged particles are attracted to the negative plates, and grounded. Fig. 1 illustrates this principle.

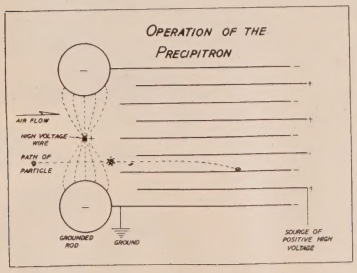


FIG. 1

An outstanding improvement due to this development is the fact that for the first time electrostatically cleaned air can be breathed.

A power pack is used to supply the direct current needed for the operation of the ionizer section and the collector section. This power pack consists essentially of transformers to increase ordinary 110-120 volt single phase, 60 cycle alternating current to the voltages required. This current is then rectified by means of rectifier tubes. A pulsating direct current results. This current is smoothed out into a pure direct current by means of capacitors. Extremely small currents are needed. For example, 40,000 cubic feet of air per minute can be cleaned with the expenditure of only 400 watts.

EFFICIENCY—All of our experimental work to gain an idea of comparative efficiency has been based on a particle count system of testing. On this basis we find that the best of air filters can only remove about 32% of the particles in the air stream. On the other hand, electrostatic precipitation removes as much as 97% of the particles. The average commercial air filter removes in the neighborhood of 10% of the particles. It is safe to say that electrostatic precipitation is the most efficient method of air cleaning ever developed.

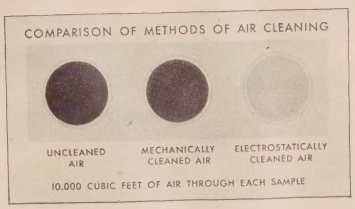


FIG. 2

Fig. 2 illustrates the comparative efficiency of an ordinary air filter with electrostatic precipitation. This method of testing is known as "The Blackness Method". It consists of drawing air through a standard laboratory cloth for a given length of time on the dirty air side of the air cleaner. The same procedure is followed on the clean air side until a spot of equal discoloration is arrived at. The ratio of the time needed to accomplish this is then evaluated, and a percentage of efficiency is obtained. As an example, suppose that it would take one minute to get a certain blackness on the dirty air side and 10 minutes to get equal blackness on the clean air side. We would then have a ratio in time of 1:10 or 90% efficiency.

Fig. 3 shows a standard collector cell. It is 8″ wide, 36″ high, and 24″ in

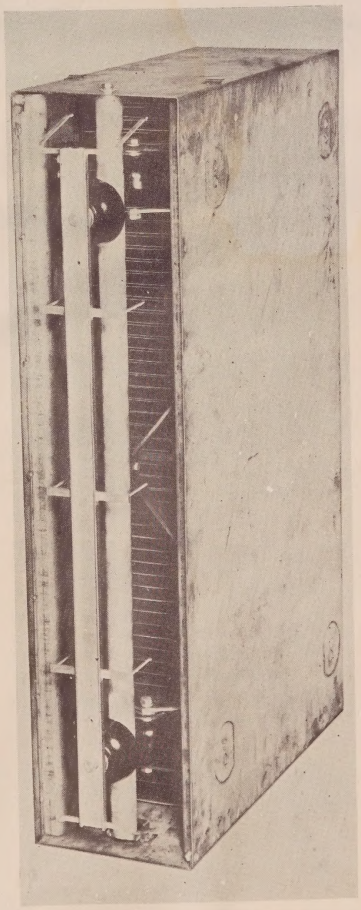


FIG. 3

depth. This cell is capable of handling 600 cubic feet of air per minute. The velocity of the air is 300 feet per minute.

In Fig. 4 we see illustrated the method of placing these cells in an ordinary air distributing duct. It is obvious that this method allows of great flexibility in fitting the cells into the duct. One will note that the cells have a foundation which consists of a bedplate which inclines the cells at an 8° angle from the vertical. Water is used in washing the cells and removing the precipitate. It is readily seen that the inclined position of the cells allows of easy drainage in the cleaning operation.

Self-contained units with from 1 to 3 cells are available for small installations. It is only necessary to attach them to a source of air and/or the proper duct work, combined with a blower system.

Henry Gitterman, precipitron specialist with Westinghouse Electric and Manufacturing Company, has attended Massachusetts Institute of Technology for the past eight years, and has specialized in the field of atmospheric air cleaning. He has been with WE since May, 1939.

purposes. It has been found that the old methods of air cleaning allowed many particles to enter the motors and generators, causing damage to the insulation. In addition, periodic shutdowns were necessary in order to blow out the dirt which had accumulated. Through the use of Precipitron air cleaning, these troubles have been eliminated.

In commercial applications, offices, restaurants, and stores, it has also been found that Precipitron air cleaning can preserve interior decoration by removing the small particles which discolor and

permits more pleasant breathing air. As a result, the amount of fresh air brought into ventilating and air conditioning systems can be reduced, and great savings in cooling and heating energy effected.

The optical and film industries have also been greatly benefited by this method of air cleaning. It is obvious that these industries need the cleanest air possible in their manufacturing and processing divisions. All of the major film manufacturing concerns use this method of air cleaning. Many of the optical instrument manufacturers have found this equipment indispensable to their process work.

Little if any work has been done in electrostatic air cleaning connected with the air conditioning of modern theatres. It is obvious that great economies and improvements can be made through the use of this equipment for such applica-

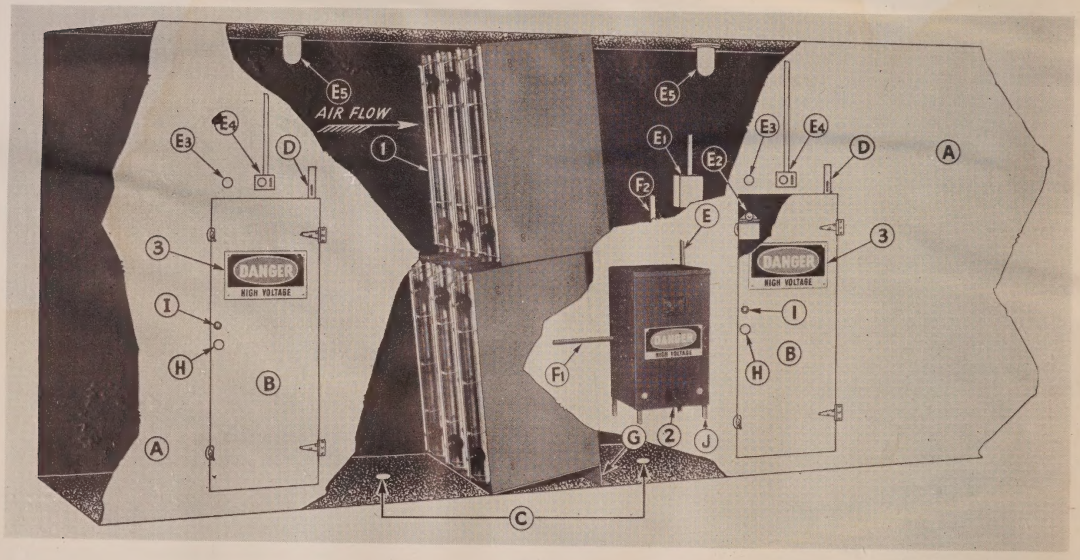


FIG. 4

Application—For a number of years after Dr. Penney's original development of this equipment, various applications were made in the field. Refinements in design were made, and finally in 1938 the apparatus was officially announced as a commercial product.

Since then hundreds of installations have been made. For instance, Precipitron cleaned air is supplied to huge steel mill motors and generators for cooling

disintegrate furnishings. Furthermore, lighting efficiency can be maintained at a maximum since dust does not accumulate on lighting fixtures.

Certain particles in the air stream are organic in composition, and when these particles get into air conditioning and ventilation ducts they putrify and generate obnoxious odors. It has been found that electrostatic precipitation removes these particles from the air stream, and

tions. Several negotiations are under way at the present time, and we hope to be in a position to announce successful applications in the near future.

We believe that there are applications for Precipitron air cleaning existing in nearly every industry since dust is a universal problem. We will be more than glad to cooperate in the solution of air cleaning problems in any industry.

WAR TIME HINTS for AIR CONDITIONING by TYPHOON

Air conditioning, like all peace time industries, must be subordinated to the requirements of war production. The restrictions on copper, refrigerants and other vital materials makes the installation of a mechanical air conditioning system difficult if not impossible. The TYPHOON "Hydrokool" and "Icedaire" systems which function effectively and efficiently without the use of materials which will most likely be restricted are available to theatre owners who seek new air conditioning installations.

Owners of existing mechanical air conditioning systems must take every precaution to prevent breakdowns and loss of refrigerants, without which the system cannot function. TYPHOON suggests 3 simple rules for the preservation of mechanical systems: 1. Frequent check-ups on machines and connections in refrigerant line by competent maintenance men; 2. Use a leak detector; 3. Check head and back pressures frequently. The complete loss of the refrigerant like Freon is serious because it is almost impossible to replace and without it a mechanical system is useless. A mechanical system in disuse due to the lack of refrigerant might be converted to use deep well water, in a TYPHOON "Hydrokool" system or ice, in a TYPHOON "Icedaire" system.

"Hydrokool" and "Icedaire" Air Conditioning are available because they do not require cooling coils (copper tubes and fins) for smooth operation. A well built, multi-stage TYPHOON Air Washer does the work of the cooling coils.

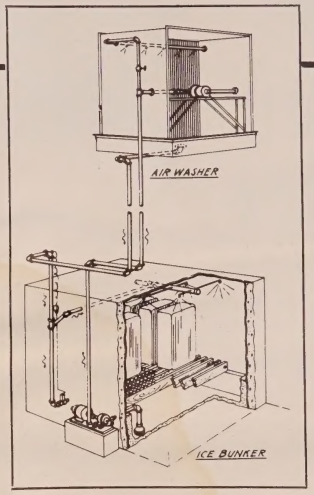
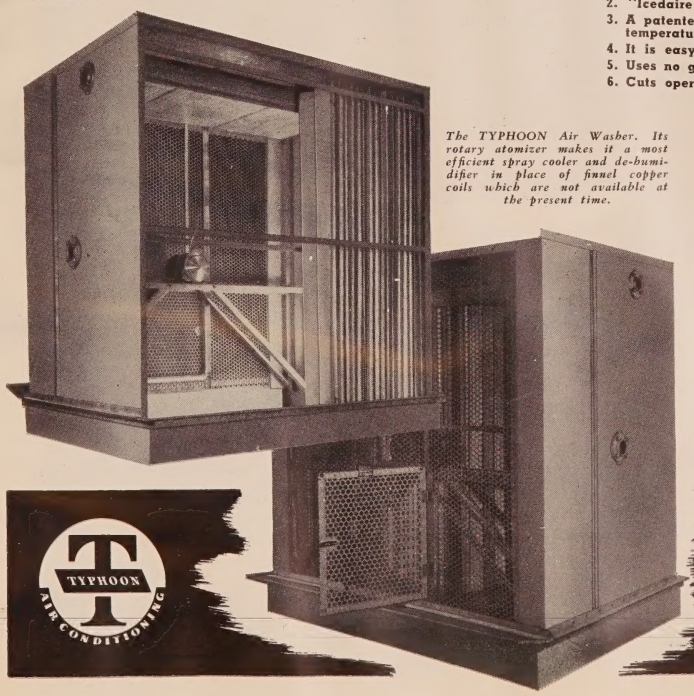


Diagram showing the ice bunker of an "ICEDAIRE" system with the connecting multi-stage Air Washer.

DEEP WELL SYSTEM "HYDROKOOL"

A "Hydrokool" system is possible only where an adequate supply of deep well water may be had without digging to prohibitive depths. The water must be sufficiently cool—at least 58°. With an adequate supply of cool water any size theatre may be conditioned successfully. Since an ideal water supply is not always obtainable, ice may be considered as an alternative.



The TYPHOON Air Washer. Its rotary atomizer makes it a most efficient spray cooler and de-humidifier in place of finnel copper coils which are not available at the present time.

AIR CONDITIONING with ICE "ICEDAIRE"

TYPHOON pioneered and developed air conditioning with ice to a high degree of perfection. Hundreds of installations attest to its practicability and efficiency. "ICEDAIRE" offers these advantages:

1. **It is a simple system with few working parts. It can be installed economically.**
2. **"Icedaire" produces same results as a mechanical system.**
3. **A patented control system makes possible the maintenance of constant temperature with surprising economy.**
4. **It is easy to operate . . . does not require an operator.**
5. **Uses no gases or chemicals. It is noiseless and odorless.**
6. **Cuts operating, repair and replacement costs.**

This almost foolproof air conditioning system has an extremely low operating cost where a few peak periods are required daily. In theatres operating continuously, the ice cost increases depending on the size and capacity of the theatre.

MAY BE CONVERTED TO MECHANICAL SYSTEM AFTER THE WAR

After the war emergency period, the ice bunker can be replaced by compressors and the system converted to mechanical air conditioning.

Consult TYPHOON engineers regarding your present air conditioning system and its maintenance. DO NOT TAKE CHANCES! TYPHOON will also estimate, without obligation, the cost of converting your present system or installing a new one.

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Safety Device for Theatres

An important paper presented at the 1941 Spring Meeting of the S.M.P.E. at Rochester, N.Y., it is here reprinted from their Journal.

by E. R. Morin

(Summary—A new fire damper release and method of preventing smoke from being recirculated or pumped into a theatre auditorium through the air-conditioning system in the absence of heat or flame has been developed by the Motion Picture Division of the Connecticut State Police, and is here described.)

THE MOTION PICTURE DIVISION of the Connecticut State Police is continually spending time and money in investigating existing safety devices and adapting them to practical uses for the theatres, as well as developing new items. It also takes into consideration the necessity of speeding up the action of such devices to prevent the spreading of fire and panic. At the same time it is further realized that the ultimate cost of these devices to the theatre owner must be kept at a minimum. It is also our aim to localize smoke and flame at its origin so that there will be no cause for unnecessary alarm.

Like everything else, the theatre is being modernized and brought up-to-date. One of the noticeable changes being brought about by this modernization program is the increasing number of air-conditioning equipment installations. This has presented us with a new problem, since at the present time the only safety devices being installed are those operating in the event of heat or flame: namely, a fuse switch by the dampers for the blower motor, and a fuse link holding the damper.

On March 8, 1936, at 7:40 P. M., the Bridgeport, Conn. Fire Department received an alarm that brought its apparatus to the Cameo Fur Store, State Street, Bridgeport. The Cameo is adjacent to this store, and the dense black smoke caused by the burning furs came pouring out of the front of the store. It so happened that the fresh-air intake of the Cameo's air-conditioning system was located at the front of the theatre building, thus allowing a large quantity of smoke to be pumped into the theatre auditorium, resulting in a slight panic. At this particular time, very few of our theatres were equipped with air-conditioning systems, and there was no known device to cope with this situation. Since this fire two or three other similar occurrences have been brought to our attention. These were caused by burning incinerators or rubbish on adjacent property, and in one instance a fire in the immediate neighborhood of the theatre.

WE HAVE BEEN CONSTANTLY on the lookout for some method or device to guard against this panic hazard. During our search it was suggested that we use an existing smoke alarm detector that rang a bell and flashed lights. We are very much opposed to alarming the patrons by the use of bells or buzzers, or by using anything which would depend wholly upon the human element for shutting off the air-conditioning equipment. Therefore, this did not appear to be the answer to our problem, as it would result in a lapse of time and cause smoke to be pumped into the theatre.

We then asked a manufacturer to submit a smoke cut-off device for experimental purposes, suggesting that the alarm portion of this device be replaced by an added relay switch. On receipt of this device, consisting of a photo-electric cell with an exciter lamp and two relay switches, we conducted numerous experiments and found this to be a very practical method of shutting off the blower when smoke was in the vicinity. However, the minute the smoke cleared, the blower automatically started up again. We felt this to be an objectionable feature, since if there were sufficient smoke in the vicinity to cause the blower to be shut down, it warranted investigation before starting the blower up again. We then incorporated a momentary contact switch located in the vicinity of the smoke cut-off device so that when the system was shut down by smoke it would require going to that location in order to start the system, and if desired, a signal light could be installed in such a location as to attract the attention of one of the employes. The experiments proved this to be a worthy and inexpensive addition. The complete device was presented to the theatre owners, and is now being installed in theatres in Connecticut as a smoke cut-off device and not as a smoke alarm as originally designed.

This solved only half our problem. As in the past, it has been our custom to approach these difficulties step by step, so we then gave consideration to the remainder of the problem, the closing of the fire damper by the smoke detector.

THE ONLY AUTOMATIC DAMPER we could locate that could be released with the smoke detector was one of the motorized type. However, this was not equipped with a fuse link so that the damper might close in the event of failure of the electric current, and there would also be a lapse of time from the moment the current was applied until the damper was completely closed. We felt that this

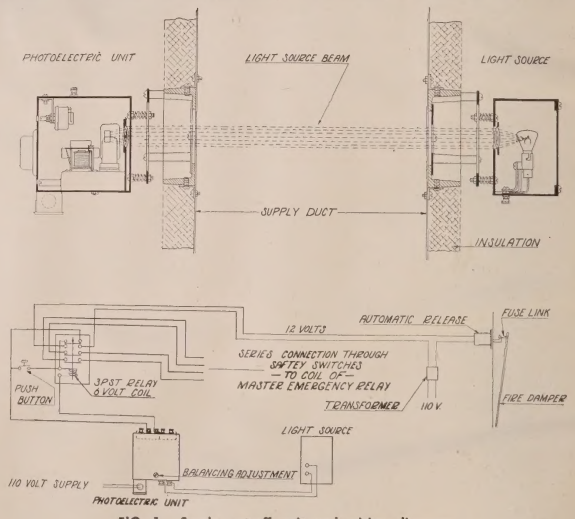
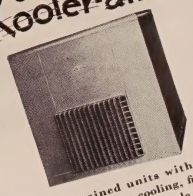


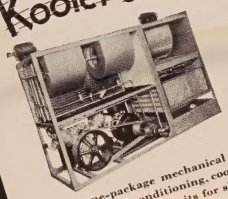
FIG. 1. Smoke cut-off unit and wiring diagram.

Evaporative Kooler-aire



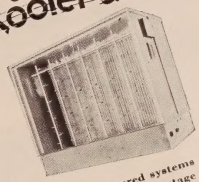
Self-contained units with Gyra Spray evaporative cooling, filtering and washing process; single or multiple application. Deflecto grilles; lowest cost cooling you can buy.

Refrigerated Kooler-aire



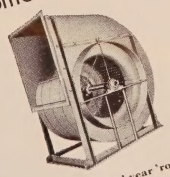
All-in-one-package mechanical refrigeration air conditioning, cooling and dehumidifying units for single or multiple unit installation; 5 to 25-ton capacities.

Cold Water Kooler-aire

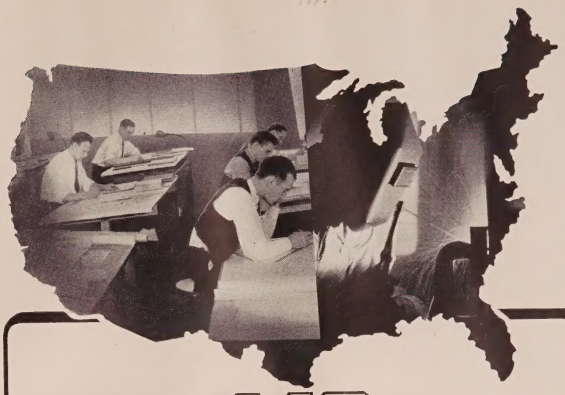


Specially engineered systems comprising single or double stage washers, and other necessary USAIRCO equipment, for cooling and dehumidifying where 55° or colder water is economically available.

Year 'Round CONDITIONING SYSTEMS



Specially engineered year 'round air conditioning systems employing USAIRCO equipment for cooling in summer, heating in winter and all-season ventilation.



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The real significance of this record lies in the vast amount of evidence it offers you concerning USAIRCO performance and cost. These several thousand case histories furnish a yardstick by which you can measure the experience, knowledge and resourcefulness of USAIRCO in providing better equipment values. They are the source of inspiration and incentive behind USAIRCO's development of new principles of equipment design and application which improve performance and reduce costs.

Whatever your cooling, heating, ventilating and air conditioning needs, USAIRCO can provide the proper equipment, ranging from a single blower to a complete year 'round conditioning system. Kooler-aire cooling units are available for evaporative, refrigeration or cold water applications. USAIRCO engineering service is ready to cooperate with you, your architect, your engineer, in the planning and installation of your equipment.

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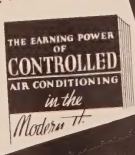

USAIRCO Theatre AIR CONDITIONING

UNITED STATES AIR CONDITIONING CORPORATION

Manufacturers of HEATING, COOLING, VENTILATING AND AIR CONDITIONING EQUIPMENT

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action should be speeded up to be momentary, and that the damper should be equipped with a fuse link as an added protection. This motorized damper was also quite costly to install in existing systems inasmuch as it was necessary to remove the present dampers and redesign the duct in that location to accommodate the new one, or else have two dampers. This excessive expense would, of course, be objectionable to the theatre owners.

We then went in search of some simple and inexpensive device that would not require any alteration of the present damper or method of fastening the fuse link, and would be instantaneous. We could not find any manufacturer who was interested in developing such a device. We, therefore, took it upon ourselves to construct such a release whereby only the catch protruded into the duct, replacing the eye-bolt now holding a chain or fuse link. We experimented with several types, such as using a magnet from a holding-type switch; an electrical furnace with a thermostat cut-off for melting an added fuse link; a latch held with a fuse wire, which is the short-circuit method; and several others. The one which has proved most practicable has as its basic principle an electrical door-lock operating on 12 volts a-c or d-c, and releasing the large, heavy dampers with the least amount of electrical energy. This had one serious objection. A loud buzzing sound was transmitted through the system that would naturally tend to alarm the patrons. By incorporating a specially designed switch using contact springs from a telephone jack-switch which opens the circuit as soon as the catch is released, this difficulty was eliminated.

Then we felt that there was still one more thing that should be done. Some of the large dampers made a considerable noise when released. We found that a half-inch asbestos wicking with a piece of asbestos cloth around it clamped into a metal frame would act as a cushion and gasket, and practically eliminate the noise of the damper closing.

SINCE THE COMPLETION of this electrical release, which can be operated from a remote station or stations, we have found it to be adaptable to other uses, such as the releasing of fire doors and asbestos curtains. In Connecticut, all asbestos curtains are equipped with a safety cord running from one side of the proscenium arch to the other, with a fuse link in the center of the cord. On the operating side of the curtain is a ball with a half-hitch. On the other side is a screw-eye in the floor, and the cord is tied to this screw-eye. On the wall close by is hung a suitable knife and a sign which reads, "Cut This Cord in Case of Fire." This new device could replace the screw-eye in the floor by fastening a ring in the end of the cord, and hooking it to the catch of the device. A switch could be installed in the switchboard where a man is on duty, and another switch could be installed just outside the stage door, thus making it possible to release the curtain off stage as well as on. By so doing, the stagehands safety would not be jeopardized in trying to cut the cord to release the curtain, and it would not be necessary to wait until such time as the flame had melted the fuse link, which might cause a delay in closing the curtain. In reference to fire doors, this could be manually operated, or operated from a sprinkler alarm system or fire alarm system.

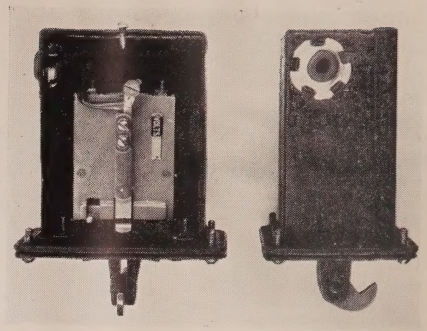

FIG. 12. Photograph of safety release, which is held mechanically, released electrically, and reset manually.

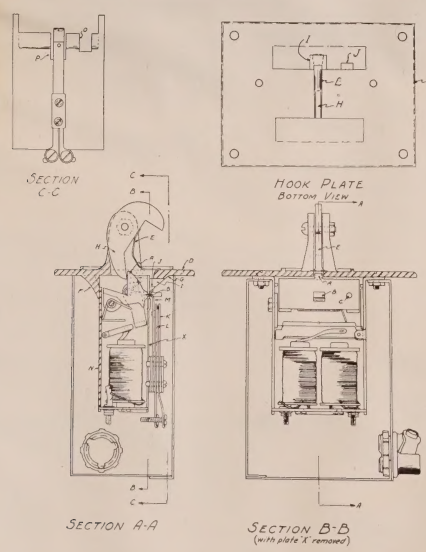

FIG. 11. Magnetic safety release.

- **(A)** Small catch to fit up into hook plate opening.
- **(B)** Short nub on rotating member to cause electrical contact between K and L.
- **(C)** Projecting pin.
- **(D)** Flush hook plate with trip hook attached.
- **(E)** Spring dust closure attached to hook H.
- **(F)** Shoulder on hook plate to align box N.
- **(G)** Shoulder on hook plate with slots J and I to allow space for pin C and hub B.
- **(H)** Trip hook rotating when A is released.
- **(I)** Slot in hook plate.
- **(J)** Slot in hook plate.
- **(K)** Spring contact as shown.
- **(L)** Spring contact as shown.
- **(M)** Fiber and metal contact actuater.
- **(N)** Mechanism box.
- **(O)** Slot for pin C.
- **(P)** Cut-out for M.

Earl R. Morin is a theatre inspector of the Connecticut State Police, and was the first policeman ever to address the Society of Motion Picture Engineers. He has done considerable research on theatre fire control, and has a laboratory in his home where, for the 16 years that he has been on his present job, he has been studying means of reducing fire risks.

SOME THINGS YOU MIGHT CONSIDER IN

War-time Cooling

Now is the time when ingenuity counts, so rather than a total shut-down, some of the following suggestions might be tried.

by James F. Dailey

ALL OUT WAR is the keynote of the nation. This means sacrifice and hardship to all Americans, and naturally takes in exhibitors and contractors servicing theatres. The need for copper, electric, and control equipment is the paramount requisite to the Government for armaments and war defense. There is really not enough to go around so exhibitors will have to forego programs calling for new theatres, air conditioning and, in many cases, reconditioning. There are really no materials available for any such plans, and materials are impossible to obtain without priorities of high preference rating.

Exhibitors who have mechanical air conditioning systems must now use extreme care. There can be no lackadaisical attention given to machinery. Tests must be made each day. The objective now is to arrest and prevent breakdowns and loss of refrigerants. Heretofore, the equipment was allowed to run itself with occasional checkups by maintenance or service men with breakdowns occurring in between such service, or a sudden awakening that the refrigerant gas had entirely disappeared.

IT IS THE WRITER'S SUGGESTION and recommendation that the exhibitor provide himself with a leak detector, and appoint some one individual competent to check head pressures and back pressures. All connections in the refrigerant lines should be checked every few days for small leaks, which might eventually lead to serious loss of gas. In the majority of cases, leaks are very slow, and if caught in time the faulty joints can be repaired, and the loss of gas stopped then and there. When the leak is detected, the first thing to do is to close liquid line valves, and run the compressor until the refrigerant is pumped back into the receiver. Next, close the suction line valves. The refrigerant, then so stored, will permit the resoldering of the faulty joints.

Freon gas used in practically all systems is now restricted by the Government, and difficult to obtain for use other than for the Army or Navy and its allied war partners. So one can see how necessary it is to conserve what one has or one will awaken to find one must do without it.

In the event of complete loss of gas in systems designed for Freon, it is sometimes possible to use some other refrigerant (such as Methyl Chloride) providing local building codes do not prohibit its use because of danger of panic in the event of leaks into the occupied areas. For most efficient use in a changeover of this kind, adjustments to expansion valves, speed of compressors, etc. will most likely be required. Of course, any large scale adoption of alternate refrigerants will undoubtedly lead to shortages in the available supply of these refrigerants as well as Freon. Altogether, the prospect, at this writing, for keeping mechanical air conditioning systems running is not very bright unless the present charge of gas in each system is carefully conserved, and, by the most painstaking care in preventing leaks, made to last out the summer.

WITHOUT A REFRIGERANT GAS, the conventional mechanical air conditioning system with its small air capacity blower

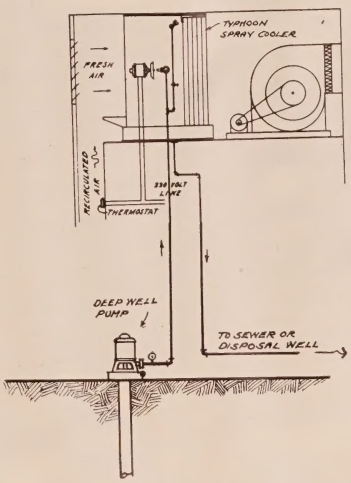

FIG. 1

will not give any acceptable degree of comfort in hot weather because the very principle of modern air conditioning is based on the theory of temperature reduction, and not on air movement.

The exhibitor who has been unlucky or careless, and lost a complete charge of gas, and upon investigation finds that he can neither obtain Freon or other suitable refrigerant but who, nevertheless, has his heart set on air conditioning, has two remaining alternatives. Incidentally, these alternatives apply to those exhibitors who have previously not had air conditioning but who had planned to install a system for the coming summer.

The first will be to investigate the possibilities of obtaining deep well water (Fig. 1) in sufficient quantities to take care of the cooling load. But here, even when successful in obtaining the water required, the exhibitor is confronted with another obstacle in the cooling coils commonly used for the dehumidifying function. These coils, made of copper tube and fin, are now unavailable. The Government has ordered that after Dec. 31, 1941, copper shall not be used other than for defense purpose. But here, if space is available, a substitute is found in a well designed counter flow air washer of sufficient size to handle the quantity of water required for the job in mind adequately. This arrangement will give equally good results as that obtained with the aforementioned cooling coil.

However, it is not always possible to be located over an adequate supply of deep well water. In fact, an exhibitor is very fortunate when he does locate water. In such cases there is one remaining alternative, ice. Yes, the newest achievement of ice is the service it offers today in the modern art of air conditioning. It is simple, economical, without fussy gadgets or costly refrigerating machinery. Ice is now providing the same atmosphere for theatres, restaurants, churches, and hotels as obtained with mechanical refrigeration.

ICE DOES FIT into the picture in central plant air conditioning (Fig. 2), and where convenient icing can be arranged without mess or bother, it can be enthusiastically recommended. It requires no apologies whatever because, properly designed, an ice system is as good as a compressor job. It is more flexible. It is better because it requires far less service, and the service that is required can be rendered by the local electrician or plumber without the necessity of calling for the very rare and highly skilled refrigeration mechanic. It can be thermostatically controlled more accurately

than can compressor jobs which usually depend on stopping and starting the whole machine, resulting in alternate peaks and depressions instead of smooth constant temperatures.

In fact, ice air conditioning systems are so simple and foolproof, and work so well that it is a shame that operating cost should ever have to be considered; but it does, and in most cases this is of course the deciding factor.

JOBS SUCH AS legitimate theatres, neighborhood theatres, auditoriums, funeral parlors, restaurants, and other places with peak loads of short duration, can be air conditioned better, and for less cost, with ice than with mechanical refrigeration. In theatres operating continuously from early afternoon until late evenings, ice can serve until such time as the emergency passes, and then compressors can replace the ice bunker, and be located in the same space to take up the functions of the ice. Just where the line of demarcation that separates ice as the most economical refrigerating medium occurs is a controversial point, and it will be, probably as long as engineering practice is influenced by merchandising expediency.

An ice air conditioning system properly designed includes a well insulated ice bunker, the same method of air distribution, and a multi-stage counter flow air washer used as dehumidifier in lieu of the copper tube and fin coil.

THE UTTER SIMPLICITY of an ice air conditioning system, the ease with which it can be installed, and the entire absence of skilled service requirements offer a logical solution to the problem of providing a real deluxe air conditioning system of the central plant type, and at a lower initial and operating cost than mechanical systems.

James F. Dailey has been associated with Typhoon Fan Company, and its successor, the Typhoon Air Conditioning Company, Inc., for 25 years. He is graduate of Boys High School, Brooklyn, N. Y., and obtained his engineering education at Brooklyn Polytechnic Institute. He is a member of the American Heating and Ventilating Engineers, and is a licensed engineer granted by the University of the State of New York.

Ice companies need no longer hesitate in wholeheartedly pushing real air conditioning, as apparatus required for such systems is, in great part, of standard nature, and can be furnished readily and without the worry of priorities, and competent air conditioning companies and consulting engineers are in most cases glad to furnish any needed engineering service in designing complete systems.

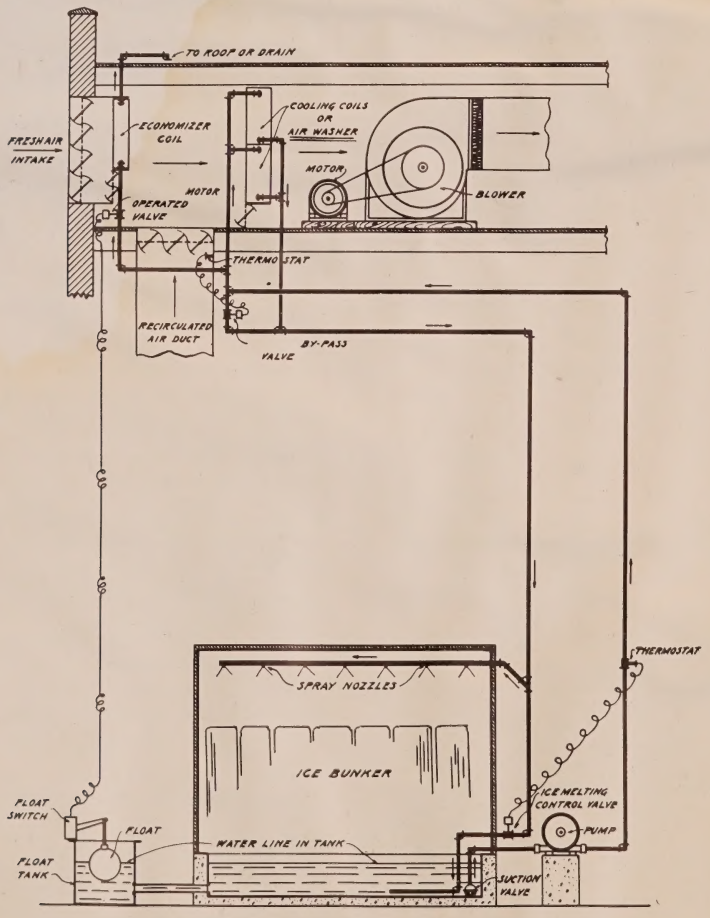

FIG. 2. An ICE SYSTEM can equal in every way the thermostatic control and performance of a refrigeration system. Over a long period of operation, ice is more expensive; but for only peak loads once or twice daily, it is cheaper than mechanical refrigeration.

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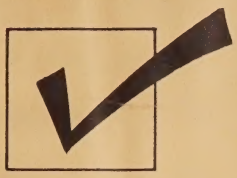

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- ☐ Curtains
- ☐ Curtain Controls
- ☐ Curtain Track
- ☐ Cycloramas

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- ☐ Door Hardware
- ☐ Draperies
- ☐ Drapery Materials
- ☐ Drinking Cups
- ☐ Drinking Fountains

- ☐ Effect Machine
- ☐ Exit Signs

- ☐ Fans
- ☐ Film Cases
- ☐ Fire Extinguishers
- ☐ Fire Hose
- ☐ Fire Shutters
- ☐ Flashlights
- ☐ Fluorescent Paint
- ☐ Floodlights

- ☐ Floor Lamps
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- ☐ Murals

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- ☐ Painting
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- ☐ Pedestals
- ☐ Photo Electric Cells
- ☐ Popcorn Machines
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- ☐ Premiums
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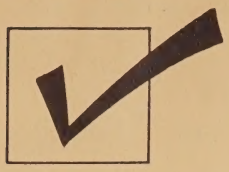

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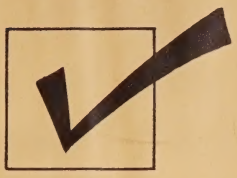

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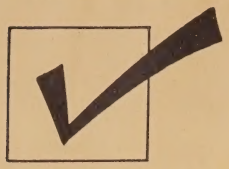

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- ☐ Curtain Controls
- ☐ Curtain Track
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- ☐ .....
- ☐ .....
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- ☐ .....
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Without any cost or other obligation to me, I desire further data on the items checked above, for which I am in the market or considering.

Owner Manager Maint. Eng. Architect Purchasing Agent Supply Dealer

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